

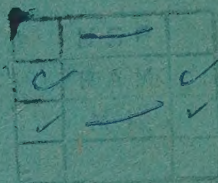
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MAURITIUS

Annual Report
OF THE
Department of Agriculture
for the year 1966

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PRINTED AND PUBLISHED BY
L. CARL ACHILLE, ACTING GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
JULY 1968

No. 8 of 1968



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Department of Agriculture,

Réduit

6th September, 1967.

Sir,

I have the honour to submit the Annual Report of the Department of Agriculture for the year 1966. The delay in submission is regretted. It has been occasioned by the non-submission of two divisional reports, one of which was not received until mid-July.

I have the honour to be,

Sir,

Your obedient servant,

M. D. FFRENCH-MULLEN,

Director of Agriculture.

THE HONOURABLE THE MINISTER

OF AGRICULTURE AND NATURAL RESOURCES,

MINISTRY OF AGRICULTURE AND NATURAL RESOURCES,

PORT LOUIS.

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Annual Report of the Department of Agriculture for the year 1966

I. General Review

During 1966, there was no important change in policy, which continued to centre round the maximum utilization of the land and water resources of Mauritius and its dependencies.

2. The United Nations Development Programme project, carrying out a land and water resources survey of Mauritius, made excellent progress. An appraisal of the work done and remaining to be done by the project was carried out in the middle of the year. As a result of which it became clear that, if the project was to take its recommendations to the pre-investment stage, it would have to be extended. A proposal for this extension was submitted by the Government. In addition, a special study was made of the irrigated agricultural potential of a poorly developed area in the south-west of the island and the Chamarel Irrigation Report was submitted.

3. Land suitable for agriculture, which has not already been developed, is extremely limited. The majority of this undeveloped land is situated in the uplands and is suited to tea; it is being developed under tea at the rate of 1000 arpents per annum in the current, four year, development programme. In general, emphasis was placed on increasing the productivity of land under cultivation as well as on the utilization of relatively small plots of undeveloped land outside the tea areas.

4. The livestock industry continued to receive considerable attention, particularly the production and marketing of milk, meat and poultry. The expansion of the poultry industry has been assisted greatly by loans from the Development Bank.

5. A record production of potatoes was obtained as a result of the encouragement given to producers of a guaranteed market by the Agricultural Marketing Board. Producers obtained stable and remunerative prices for their potatoes which resulted in an excess of production over demand in the second half of the year which, in turn, resulted in some loss of stored potatoes, because of the limited storage facilities available to the Board. Plans have been formulated to increase the storage capacity of the Board in time for the second season potato crop in 1967. As a result of the Board's activities, a record acreage of onions was planted in Rodrigues. Weather conditions were unfavourable during the crop and an estimated production of over 1000 tons of onions fell to 755 tons, which were purchased by the Board for sale in Mauritius. Limes in Rodrigues were declared a controlled product and plans were made to market the 1967 crop.

6. Some success was obtained in controlling illegal fishing with nets and explosives. 1,129 metric tons of fish were landed; landings of the controlled catch have been similar for the past three years. The advantages of gill-nets compared with large seines were becoming generally accepted by fishermen in both Mauritius and Rodrigues because of the selective nature of their fishing; gill-nets of 10 cm. mesh size appear to catch only mature fish and give a yield not inferior to large seines. By the end of the year, suitable preliminary designs had been obtained for three fishing boats, to be constructed locally in the first two years of the 1966-70 development programme. The 26 ft boat is intended for use as a prototype fishing boat capable of fishing on the continental shelf outside the reef and manned by up to six fishermen. The 36 ft boat is intended to investigate the fishing potential on the continental shelf and for trying out new methods of fishing in these waters. The 85 ft, all steel, deep sea fishery research vessel is intended to experiment with new methods of fishing in the western Indian Ocean and on the extensive banks that lie to the north of Mauritius.

7. In general, weather conditions were unfavourable to agriculture and to production. Rainfall was considerably below average in the first six months of the year which had an adverse effect on the sugar crop in the second half of the year. Dry weather markedly reduced the onion crop in Rodrigues and adversely affected the growth of young tea, although it was sufficient to keep tea flushing. It is interesting to note that the tea areas experienced twenty-two consecutive days without rain in September/October, the longest previous period without rain being fourteen days in November, 1956. Maximum temperatures were significantly below average during the growing season for the sugar crop and the daily range of temperatures was smaller than normal. The tobacco crop was adversely affected, both as regards yield and quality, by the dry conditions experienced throughout the year. Cyclone *Denise* in January, with wind speeds of 45 miles per hour over one hour and gusts exceeding 100 miles per hour, caused appreciable damage to all crops, while Cyclone *Kay* in March, although less severe, caused some damage at higher elevations.

8. Although climatic conditions during the maturation period for the sugar crop were generally favourable, the production of sugar was low and amounted to 561,760 metric tons compared with 664,402 metric tons in 1965, a reduction of 102,642 metric tons. The yield of sugar per arpent was 2.88 metric tons compared with 3.42 metric tons in 1965.

9. The production of tea rose by 523,691 lbs, a 12 per cent increase on the 1965 production and amounted to 4,353,039 lbs compared with 3,829,348 lbs in the previous year. Of this production, about 30 per cent was consumed locally, the remainder being exported, mainly to the United Kingdom. In the last quarter of the year, as a result of a South African Mission to Mauritius, exports of tea to South Africa increased substantially. The price of Mauritian tea on the London market was reduced during the year, the average price obtained being 3/5.18d. per lb compared with 3/8.32d. per lb in 1965, a reduction of 3.14d. When considering this fall in price, it should be remembered that the average sale price of all tea sold on the London auction dropped by 1.31d. over the same period,

10. At the beginning of the year, the acreage of Virginia tobacco to be grown was increased by one-fifth and that of Amarello was reduced by one-quarter, based on the manufacturers' requirements and consumption trends. Following changes in excise duties in July, the consumption of the cheaper brands of cigarettes, containing mainly Amarello tobacco, increased to the detriment of Virginia cigarettes. In consequence, the Tobacco Board decided to issue permits for the planting of a second season crop of Amarello of 197 arpents to replenish stocks of this tobacco, which would become dangerously short, if the consumption trend favouring Amarello cigarettes continued. The dry conditions resulted in the quality of flue-cured Virginia tobacco being lower than in 1965, while the quality of air-cured Amarello tobacco was better than in the previous year. The yields of both types of tobacco were lower than in 1965 and the average financial return per arpent was lower for Virginia tobaccos and only marginally lower for Amarello. No Burley tobacco was produced.

11. The production of Aloe fibre increased to 1,552 metric tons compared with 1,390 metric tons in 1965. This fibre was used with imported jute mainly for the manufacture of sacks at the Government Sack Factory. 1,658,354 sacks were produced compared with 1,552,782 in 1965.

12. There was a reduction in the total weight of locally produced beef from slaughter-houses which amounted to 1,050,342 lbs from animals produced in Mauritius and 238,350 lb. from Rodriguan animals, imported into Mauritius, compared with 1,422,364 lbs and 328,330 lbs respectively, in 1965. The average weight of Mauritian and Rodriguan cattle slaughtered improved somewhat on the previous year. 8,793 bullocks, imported from Madagasikara, were slaughtered compared with 7,302 bullocks, in 1965. There was a reduction in the importation of frozen beef and beef products of some 330,000 lbs. The quantity of sheep and goats exported from Rodrigues to Mauritius increased by 329 head compared with the previous year. There has been satisfactory increase in the local production of eggs and poultry.

13. Foodcrop and vegetable production was generally higher than in the previous year, there being major increases in the production of potatoes, which more than doubled, with appreciable increases in onion production in Rodrigues, groundnuts, pineapples and ginger in Mauritius. There was an appreciable decrease in the production of sweet potatoes, beans and peas and mixed vegetables. The "Produce More Food" campaign, in which all sections of the planting community have co-operated, particularly the large estates and Young Farmers Clubs, has undoubtedly assisted the production of foodcrops. The estimated total production of foodcrops rose by 4,900 tons from 42,722 metric tons in 1965 to 47,622 metric tons.

14. The Board of Agriculture, Fisheries and Natural Resources, which met on two occasions, considered reports on the position of the new virulent strain of gummosis of sugar-cane. It also considered the efforts being made in foodcrop production by estates and heard a report on the work being done with sunflowers in ratoon interlines. It also approved the recommendation of the cane release committee for the release of seven varieties of

sugar-cane, namely M. 442/51, M. 99/48, M. 409/51, M. 13/53, M. 13/56, M.377/56 and N.Co.376. In December, it also decided to recommend that the uprooting date for the variety M. 147/44 should be put back to the 31st December, 1973, following a review of the gummosis situation. The fisheries committee supported proposed amendments to the Fisheries Ordinance and Regulations with a view to preventing the taking of immature fish and checking the serious depletion that has occurred in the lagoon fisheries.

15. The Department was organised into 13 divisions, staffed by 362 officers, including a Director and two Deputy Directors who plan and carry out the experimental, development and extension work of the organisation. At the close of the year, there were 78 vacancies. Twenty-four part-time lecturers were employed by the College of Agriculture. Assistance was received from the Food and Agricultural Organisation of the United Nations who provided an Extension Expert to assist in the in-service training of extension staff as well as an Associate Home Economist, in connection with the FAO/UNICEF/WHO project on agricultural extension training in conjunction with the development of home economics and nutrition education. The Canadian Government also made available the services of a Fishery Adviser, to assist in the development of the fisheries of Mauritius and its dependencies. Assistance has also been given by the Agricultural Economist of the Nuffield Foundation, attached to the Agricultural Marketing Board, who has compiled the 1964 livestock census and rendered valuable assistance in connection with a survey of cow-keepers and the implementation of the milk marketing scheme.

16. The work of the Department is broadly divided into:

- (a) Applied research and development—to study and develop crops and livestock in the various environmental conditions obtaining in Mauritius and Rodrigues;
- (b) Extension—to advise and assist farmers with a view to their obtaining the maximum productivity and economic returns from their farms.

17. The development of agricultural industries, other than sugar, and the provision of extension services to both small sugar-cane planters and others as well as livestock producers continued to be the main concern of the department.

18. The "Produce More Food" campaign was extended to a further eight villages. The *ad hoc* committee set up by the Honourable Minister of Agriculture and Natural Resources, to encourage the production of food crops on sugar-cane fallows and interlines continued to obtain the full co-operation of the Mauritius Sugar Producers Association. At the beginning of the year it was estimated that sugar producers would plant 708 arpents of full plantations and 3,406 arpents of interlines with maize, beans, potatoes, groundnuts and miscellaneous foodcrops. However, 1,648 arpents of full plantations were planted together with 3,677 arpents of interlines which yielded 2,011.75 tons of foodcrops.

19. The majority of the technical officers in the department received their initial training in agriculture and sugar technology at the College of Agriculture. Professional staff completed their training overseas. The College also provided technical staff for the sugar industry, other agricultural industries and the Mauritius Sugar Industry Research Institute. The College continued to offer two, three-year, courses leading to Diplomas in agriculture and sugar technology, a one-year, Certificate course in tropical agriculture and part-time courses in sugar-cane cultivation and sugar analysis. A record number of 115 candidates sat the entrance examinations, 30 were admitted to the diploma courses, 27 to the certificate courses, of which 8 took tropical agriculture and 19 sugar-cane cultivation. For the first time the diploma entrance examination was held overseas but no candidate satisfied the examiners. Three students from East Africa were admitted by direct entry, having been awarded scholarships by the Government of Mauritius. There were 95 students attending courses of which 64 were taking the diploma courses. Six students were awarded the Diploma in agriculture and six in sugar technology, four students received the Honours Diploma, 3 in agriculture and 1 in sugar technology. Two laureateships were awarded. Under the auspices of the "Comité de Collaboration Agricole Maurice—Réunion—Madagasikara", a party of six third year students, accompanied by two lecturers, visited Réunion in July. With the assistance of the local "Comité", all twelve third year students in agriculture, accompanied by two lecturers, visited Rodrigues in December to observe the land rehabilitation and development work in progress on that island.

20. The Department continued to maintain the essential services which it provides for the sugar industry, namely the Sugar Millers and Planters Central Arbitration and Control Board which regulates the sale and purchase of sugar-cane as well as the extension services for small sugar-cane planters below 100 arpents. Some 21,515 tests were carried out on planters' and miller/planters sugar-cane at 22 factories. Twenty-four protests were received in respect of the final assessment of sugar for the 1965 crop, 15 from Co-operative Credit Societies and 9 from planters. Seven Co-operative Credit Societies and two planters withdrew their protests. In no case was the assessment varied save for certain planters, in one factory area, where the assessment had been based on a private agreement between the planters and their miller. The assessment had to be increased because of the fact that the planters stood to receive less than the 68 per cent of the yield specified in the Ordinance. Cost of production questionnaires were forwarded to 100 planters and 23 sugar estates. A schedule of rates of transport costs for sugar-cane was issued. Eight applications for alterations in the delimitation of factory areas were received; all were either rejected or not entertained. Permits were issued to 44 middlemen; 32 complaints were received and settled. 12,085 cane contracts were registered. 15,327 cane contracts were in force covering some 28,400 planters. The number of planters, who failed to enter into contracts before the 31st May, fell to 750 compared with 1,101 in 1965. The number of weighbridges in operation was 114, a reduction of 2 compared with the previous year. Weighbridges were checked prior to the commencement of the crop and during the crop 902 surprise checks were carried out and 813 vehicles were re-weighed.

21. The total acreage under sugar-cane was 206,000 arpents, of which 195,740 arpents were harvested compared with 207,000 and 194,000 arpents respectively in 1965. 561,760 metric tons of sugar were produced compared with 664,402 metric tons in 1965. 561,559 long tons of sugar were exported, of which 380,000 long tons were sold at the negotiated price of £47.10.0 per ton under the Commonwealth Sugar Agreement compared with a similar quantity in 1965 at a price of £46.11.6 per ton. The remaining 136,790 long tons were sold on the free market and 28,520 long tons were consumed locally. The United Kingdom was the largest customer taking 424,760 long tons, followed by Canada taking 111,970 long tons, the United States of America taking 14,500 long tons and Malaysia taking 10,320 long tons. The yield of sugar per arpent was 2.88 metric tons compared with 3.42 metric tons in 1965. Five sugar-cane varieties, namely M.147/44, M.93/48, M.202/46, B.37172 and Ebene 1/37 accounted for about 73 per cent of the acreage under crop. The remaining 27 per cent was made up of Ebene 50/47, M.134/32, B.3337, M.31/45 and other varieties. 133,284 metric tons of molasses were produced of which 127,522 metric tons were exported including carry over stocks, and about 8,000 metric tons were utilized in the manufacture of rum and various alcoholic products, the balance being applied as fertilizer. The total production of alcohol reduced to 100° G.L. was about 1,462,000 litres of which 23,766 litres were exported.

22. The close liaison established between officers of the Department and those of the Mauritius Sugar Industry Research Institute was maintained. The research findings of the Institute were made available to the staff of the Department through a series of lectures given by the staff of the Institute during the year as well as by the individual contact between officers.

23. The Department continued to direct the activities of the three committees administering the Sugar Industry Rehabilitation Fund. The Sugar Planters Rehabilitation Fund continued to operate and manage the Mechanical Pool which is organised to clear and de-stone land planted under sugar-cane. The fund operated the Pointe-aux-Sables Cane Nursery, as well as subsidiary cane nurseries in factory areas, to provide planters with disease free planting material and planting material of newly released varieties. Small planters have continued not to take advantage of the disease free planting material available to them from subsidiary nurseries.

24. The tea industry was controlled by the Tea Control Board, which held regular meetings throughout the year. The Board was mainly concerned with the loss of crop due to numerous public holidays that occur during the peak cropping months, local market quotas and the sale of tea to the Republic of South Africa. The " Drink more Tea " campaign was continued, albeit on a reduced scale. The compilation and issue of quarterly and annual statistical reviews were continued.

25. The La Chartreuse Co-operative Marketing Society Ltd. continued to act as Government's Managing Agents, in respect of La Chartreuse tea factory. In December, the Society intimated to Government that they wished to exercise their option to purchase the factory with effect from the 1st January, 1967, and this was accepted. In December, the daily leaf intake

of La Chartreuse factory was in the vicinity of 45,000 lbs of green leaf, which is the maximum the factory can absorb. In consequence, part of the green leaf crop from Wooton Tea Experiment Station had to be diverted to another tea factory.

26. The Mare Anguilles Tea Factory resumed production, after being re-equipped with withering troughs, triturator, C.T.C. machines and skip fermentation. The other six factories continued in production. The construction of the building and quarters for the new tea factory at Dubreuil, being built by the Tea Manufacturers (Sugar Millers) Ltd., was commenced. The factory is intended to go into production on the first of October, 1967, and to cater for the green leaf produced from the small holding development project. The factory is being financed by the sugar industry and will probably be one of the most modern tea factories in the world, when it goes into production. It will have a rated capacity of 1,500,000 lbs of made tea per annum and is being equipped with withering troughs, rotovane, C.T.C. machines, skip fermenting and will be as fully automated as possible.

27. As at the 30th June, 6,737 arpents were under tea, an increase of 6.7 per cent on the previous year. Plantations at full maturity comprised 3,003 arpents or 44.6 per cent of the total area under tea. There were 670 individual planters compared with 476 in the previous year, as a result of the allocation of small holdings under the Government tea development scheme. Seven tea factories produced 4,353,039 lbs of made tea, an increase of 12 per cent over the previous year. Of this 2,855,038 lbs of a value of Rs 6,509,060 were exported.

28. As a result of setbacks from the 1960 and subsequent cyclones, the first tea development project which commenced in 1956 and was designed to develop 3,000 acres of tea, was extended on several occasions and the final clearing was completed towards the end of the year. This scheme has resulted in the development under tea of 212 acres of private land, 1,980 acres of Crown Land, leased to project planters and 289 acres of Crown Land, developed by the Department and leased to small holders, making a total of 2,481 acres.

29. The second tea development scheme, which commenced in 1962, envisaged the planting of 500 acres of Crown Land per annum by the Department for distribution, when established, as smallholdings of about 4 acres each. The annual target in the 1966-70 development programme is 1,000 acres of land to be developed under tea. By the end of the year, 3,906 acres had been contour-surveyed, 2,877 acres cleared, 2,433 acres prepared for planting and 2,192 acres planted, of which 638 acres were planted in 1966. To date, 335 smallholdings have been distributed, of which 132 were allocated during the current year.

30. As was to be expected, the industry and application of smallholders varied with the result that some were obtaining a reasonable financial return from their holdings, in spite of the fact that the holdings are not yet mature,

while others had to be removed for inefficiency. Smallholders were assisted by the Co-operative Department in arrangements for short term loans for the purchase of fertilizer etc. Towards the end of the year, it was becoming clear that the present size of holding of about 4 acres was perhaps too large for the general run of smallholders. The fact that certain smallholders had to have recourse to employing labour, or obtaining outside assistance, indicated that some adjustment may be necessary in the standard size of smallholding being issued. The size of holding was fixed following an agro-economic survey of existing tea smallholders and was based on the size of family.

31. The eight tea seed gardens, covering 69 acres, of which 35 are in bearing, were affected by Cyclone *Denise* in January. 16,460 lbs of seed were harvested, in spite of the cyclone, compared with 8,280 lbs in 1965. 40,000 lbs of tea seed were imported from Tanzania and 20,582 lbs from Malawi. Imports had to be increased slightly to cater for the increased acreage being developed.

32. The rainfall at Wooton Tea Experiment Station was 27 inches lower than the 16 year average of 145 inches. In spite of this, the total green leaf harvested was again a record, being 356,978 lbs for the tea crop year 1965-66 from 69.74 acres of 11-15 year old tea. The average yield per arpent was 5,120 lbs. Comparative yields for the previous tea crop year were 343,872 lbs of green leaf, giving a yield per arpent of 4,931 lbs. Yields in the first six months of the tea crop year 1966-67 show a considerable increase over the yields for the corresponding period in the previous year. Work was continued on vegetative propagation of selected clones and trials of various rooting media. Preliminary trials indicated that greater success was obtained when cuttings were taken during the summer months, from November to April. Clonal selection continued at Wooton and other Government and private plantations, a total of over 300 clones were under trial. Clone 1 H continued to exhibit considerable promise. The pruning experiment reported in 1965 was continued; the result of the second cycle will not be available until 1968. Fertilizer experiments were intensified; a trial on tea seedlings in the nursery indicated that there was no fertilizer response during the first two to three months of growth, thereafter nitrogen, particularly in combination with potash and other elements had a beneficial effect on growth. Another trial on mature tea indicated that nitrogen had a direct and cumulative effect on yields of green leaf when in combination with phosphate and potash. Another trial indicated that nitrogen alone or in combination with potash produced significantly higher yields, the response to phosphate is better when in combination with nitrogen and potash. The comparison of the various jats of tea grown at Wooton was continued. The taster's reports indicated that the quality of the tea produced from the local jat was as good as that from the others. Continued trials with Simazine for weed control in nursery beds has indicated that this weedicide suppresses weeds for up to six months, without affecting the young tea plants. Shears for plucking tea were received from the Far East and were tried out. They were found to be unsatisfactory as when using shears, 50 to 80 per cent bad leaf was plucked.

33. The control of the tobacco industry continued to be vested in the Tobacco Board which not only purchased, processed and stored all leaf produced but provided an extension service to the industry. Research services were provided by the Department at the Richelieu and Pamplemousses Experiment Stations, which stations were also responsible for the production of seed of all proven varieties. The seed stocks held by the Department were sufficient for two years usings, as an insurance against natural disasters. Weather conditions were unfavourable, drought conditions prevailed intermittently during the first half of the year and were particularly severe from September to early December. The second season Virginia and Amarello plantations were adversely affected. The yield and quality of Virginia flue-cured tobacco were below normal and the second season Amarello plantations of 197 arpents, planted as an emergency measure following a change in excise duty in July, were seriously affected in some areas by pests and diseases and, in some cases, were totally lost. No Burley was produced. The acreage under Virginia tobacco was increased from 813 arpents in 1965 to 1,004 arpents, while the normal Amarello acreage was reduced from 99 arpents in 1965 to 72 arpents.

34. The trend that had become apparent in recent years for the consuming public to prefer cigarettes made from Virginia flue-cured tobacco was sharply reversed when excise duties were changed in July. 492 metric tons of tobacco of all types was produced from 1,076 arpents compared with 484 metric tons from 929 arpents in 1965. Usings of domestic leaf by both manufacturers increased slightly compared with last year to 498 tons. There was again a decrease of 4.4 per cent in the imported leaf used in manufacture compared with the previous year. The manufacturers have co-operated with the Tobacco Board in reducing the percentage of imported leaf used in manufacture as illustrated by the fact that percentages have been falling from 24.9 per cent in 1961 to 12.8 per cent in 1966. Usings of domestic leaf have increased by 13,012 kgs and usings of imported leaf have decreased by 27,629 kgs compared with 1965, which is equivalent to an increase in usings of domestic leaf of 2.7 per cent and a decrease in usings of imported leaf of 27.3 per cent.

35. The Mauritius Hemp Producers Syndicate continued to control the marketing of aloe fibre, which is processed into sacks by the Government Sack Factory for use by the sugar industry and for shipment to Burma for the bagging of rice purchased from that country. The number of fibre factories operating was reduced by one to nine, which factories produced 1,552 metric tons of aloe fibre valued at Rs 1,891,210. Fibre production increased by 162 metric tons compared with the previous year. It was estimated that there were 3,012 arpents under aloe fibre of which 2,755 were from wild plantations. 80,008 pure aloe sacks were produced together with 1,569,844 sacks containing a mixture of aloe fibre and imported jute and 8,520 miscellaneous sacks. In addition, filter press cloth, other fabrics, yarn and rope were manufactured. A second-hand bag cleaning and reconditioning plant was set up to recondition the aloe/jute bags imported with rice from Burma for re-export to Burma for further bagging of rice. This operation resulted in reducing the operating loss of the factory to Rs 186,466 compared with Rs 283,217 in 1965.

36. At the close of the year, at the two livestock breeding stations at Curepipe and Palmar there were 318 head of cattle of the Creole breed, 143 Ongoles, and 78 Borans together with one Brahmin bull. Two Ongole and 8 Boran bulls were transferred to Rodrigues to augment the Borans already sent to grade up the herd cattle on that island. The Borans have continued to thrive at Palmar and have produced in Rodrigues some very attractive cross bred animals. The crossing of the Brahmin bull with selected Ongole cows continued to give satisfactory results.

37. There were 50 pigs of all ages of the Large White breed at Curepipe and the demand for young boars and gilts has increased. Opportunity was taken to introduce five females and one male of the Berkshire breed from a consignment imported for Rodrigues.

38. The herd of goats at Palmar comprised 78 Anglo-Nubians, 22 Jumna Pari, 7 British Alpine and 14 goats introduced from Rodrigues for crossing. Fresh Anglo-Nubian blood was imported from the United Kingdom in the form of five bucks and four does.

39. At Reduit, there was a total of 72 rabbits of the following breeds, Flemish Giant, Chinchilla, California White and New Zealand White. The results to date do not show much promise.

40. The poultry breeding programme was continued and parent stock of "404" and "707" Thornber hybrid strains were maintained for the production of layers. In addition parent stock of hybrid "4" from Sykes was maintained together with a trial of pullets of this breed. Parent stock of Cobb's broiler as well as Ledbreast-Pilch from Sykes, for the production of broiler chicks, was continued. Production of White Leghorns was discontinued due to reputed loss of popularity with producers. 313,380 eggs were produced by the various breeds of which 153,608 were incubated for the supply of chicks to the public and 3,679 were issued to the Animal Health Laboratory for vaccine production. 91,161 chicks were hatched compared with 62,550 in 1965. 49,327 broiler chicks were supplied to the two established commercial broiler producers. 6,003 kgs of dressed chicken from trials and culls were sold for consumption. The demand for Broad Breasted Bronze turkeys was even less than in the previous year, as a result of which the unit was scrapped.

41. The policy of importing high grade Friesian semen from the Department of Veterinary Services, Kenya was continued to implement the cross breeding programme with a view to increasing milk production. A similar cross breeding programme in Rodrigues, using Friesian bulls imported from Australia, continued to give promising results. While on a visit to Mauritius, the Honourable Colonel Sir Malcolm Stoddart-Scott M.P., who is a breeder of pedigree Friesian cattle in the United Kingdom, generously donated a young bull to this programme. The opportunity was also taken to purchase three additional bulls from the same herd, as the conception rate from room temperature semen, imported from Kenya, was not as good as expected. In Mauritius, the cross bred Friesian programme is based on voluntary requests from cow keepers and the demand for Friesian semen

has not been as good as was expected. The probable reason is that cow keepers are reluctant to have their cows ear tagged and the subsequent progeny tagged also, which is essential for record purposes to prevent, in due course, too high a proportion of Friesian blood in the crosses. The up-grading of Creole cows by using selected Creole bulls was continued. 13,693 calls for artificial insemination were received and 12,256 cows were inseminated with an overall average conception rate of 54.6 per cent.

42. The demand for the products of the Livestock Feed Factory was similar to that of last year. 4,553 tons of livestock feed were manufactured compared with 4,548 tons in 1965. Fifteen types of feed were offered by the factory and 4,571 tons were sold compared with 4,668 tons in 1965.

43. The Agricultural Economist of the Nuffield Foundation compiled the Livestock Census of Mauritius, which was carried out in 1964. It was published in July. The tables and the cattle distribution map presented in the report give a clear picture of the geographical distribution of cattle, pigs, sheep and goats and on the age structure, breed and pattern of ownership of the national dairy herd. The report incorporated the livestock statistics compiled in 1950 and 1956 and revised these where necessary, particularly in respect of the geographical distribution of milch cattle. In interpreting the results of the 1934 Livestock Census, it should be borne in mind that the enumeration was spread over six months. The report illustrates the very marked change that has occurred in the breed composition of the national dairy herd over the past 10 years which is a result of the Department's artificial insemination programme. The cattle population has risen from 25,926 in 1930 to 44,588 in 1964, exclusive of draught cattle. At the time of the census, there were also 358 sheep, 65,591 goats and 3,279 pigs.

44. The annual cattle census on the cattle walk of Rodrigues was carried out as usual and indicated a total cattle population of 3,933. The cattle population of the cattle walk is falling gradually as development of this area proceeds, there being a corresponding increase in the cattle population on rehabilitated and developed mixed arable farms and dairy farms. The marked reduction in the number of cattle grazing on the cattle walk over the past few years has markedly reduced the over-grazing which was so apparent in the past.

45. The health of livestock at the various departmental stations on which stock is kept was satisfactory as was the animal health picture of the island. Field staff of the Veterinary Services Division attended to 6,017 cases requiring veterinary aid, of which 67 were concerned with infertility due to ovarian cysts.

46. The Animal Health Laboratory received 4,519 specimens during the year for pathological, parasitological and haematological examination. The work of the laboratory was concerned not only with investigation of specimens submitted but also with the preparation of vaccines, animal disease surveys and research. 725 samples including 587 blood films, 11 skin scrapings and 184 milk samples were examined in connection with animal disease surveys. Vaccine production was restricted to inactivated Newcastle Disease vaccine and Fowl Pox vaccine. An interesting piece of research has been carried out

into the possible role of fungi and yeasts in setting up diseases of animals. This work was initiated following the isolation of yeasts in pure culture from the fourth stomach of an aborted foetus. Only one previous case of abortion in cattle, due to this organism, has been previously reported in veterinary literature. A second case occurred later in the year with the same result. Following up this investigation, attempts are being made to determine whether yeast or fungi could contribute in any way to the poor conception rates following artificial insemination where coconut milk is used as the dilutant for the semen. The yeast *Candida* has been demonstrated to grow extremely well in coconut milk.

47. The vaccination service for poultry, commenced in 1965, was continued. The demand for this service increased from 71,489 birds vaccinated against Newcastle Disease and Fowl Pox in 1965 to 100,938 birds similarly vaccinated in 1966. The vaccinators have been trained to give simple advice on management and hygiene to poultry farmers. 168,270 doses of Newcastle vaccine and 84,070 doses of Fowl Pox vaccine were sold direct to poultry keepers.

48. The annual tuberculin test was carried out using the single intradermal comparative test. 2,281 herd cattle, 505 milch cattle and 11 buffaloes were tested. In herd cattle, there were 52 positive reactors, an incidence of 2.5 per cent. There were no reactors in the milch cattle tested. Amongst the buffaloes, 71.3 per cent gave a positive reaction to the test. All reactors were disposed of by slaughter.

49. To prevent the introduction of infectious contagious diseases into Mauritius, animal quarantine facilities were maintained at Roche Bois and at Reduit. 67 ships and 8 aircraft carrying livestock were cleared. There was an increase in the number of slaughter cattle and goats passing through the Roche Bois quarantine station compared with the previous year and a decrease in the number of sheep. Four Friesian bulls, imported from Australia for Rodrigues, to speed up the cross bred breeding programme on that island were quarantined as well as an introduction of 5 Bucks and 4 Anglo-Nubian does. 2,005 import permits were issued together with 502 landing permits. There was a drop in the importation of frozen meat products compared with 1965 and an increase in the import of frozen mutton and offal. There were decreases in the imports of frozen goat meat, pork, poultry and eggs, the reduction in eggs being particularly large. The reductions in frozen beef and goat imports probably reflect the increase in imports of live animals for slaughter, while the decreases in importations of poultry and pork products reflect increases in production both here and in Rodrigues. There was a satisfactory increase in the carcass weight of local cattle slaughtered compared with the previous year.

50. On land settlements, settlers' holdings were farmed satisfactorily. Adverse climatic conditions affected yields and partly as a result, rent collection was again most unsatisfactory. At Port Rouge work commenced on the extension of an irrigation canal, which will bring an additional 11 acres under irrigation. Four, half-arpent, plots were distributed at Grand Sable. At Bée Manique, a few holdings were uncultivated but otherwise holdings on all settlements were cultivated satisfactorily.

51. The crop extension services were concerned mainly with increasing productivity per acre by improved crop husbandry to ensure better yields and higher incomes for farmers. Some 8,100 field visits were paid to sugar-cane and foodcrop producers. Particular attention was paid to the rational use of complete fertilizers with respect to mixtures, method and time of application and the timely control of pests and diseases. Advice was tendered on the correct use of the wide range of chemicals on the local market, available for pest and disease control. The importance of choice of variety in relation to regions and the planting of disease-free material was stressed to cane farmers. The necessity for using crop rotation in foodcrop production was emphasized.

52. Eleven fertilizer demonstrations were laid down on sugar-cane by the extension services. Field demonstrations on the control of pests and diseases on food crops and vegetables were increased to 114; yield responses were marked. 103 evening meetings were held, 23 of which were specifically for small sugar-cane farmers. A series of eight specialised lectures were given to potato growers. 15 lectures were given to regional co-operative farming groups. The main subjects reviewed at these meetings, other than the specialised ones, were the incidence of gummosis and the replacement of susceptible cane varieties by resistant ones, the timing, mode of application and the use of compound fertilizers on sugar-cane and foodcrops, the control of pests and diseases and precautions to be taken when using pesticides and fungicides, the better utilization of available land and soil conservation.

53. The major diseases affecting tomatoes and potatoes, bacterial wilt and late blight were not as severe as in recent years. On account of the dry weather conditions experienced in the early winter months and again in the latter half of the second potato season, late blight was not as virulent as usual. The incidence of leaf roll on potatoes was high in places, particularly in plantings made from some of the King George seed from South Africa. The gumming disease survey of small sugar-cane planters holdings was continued on a factory area basis. Twelve of the factory areas situated in the eastern, southern and central parts of the island were completed. By the end of the year, some 40,000 arpents out of 67,000 arpents had been surveyed. From the data available, the worst affected areas were the coastal belt in the east and southern parts of the island where the variety M.147/44 was extensively cultivated. The new strain of leaf scald disease was found to be severely affecting the sugar-cane variety M.202/46.

54. The inter-cropping of virgin sugar-cane continued on small planters lands. Large acreages, especially in the north, were devoted to potatoes, tomatoes, groundnuts, beans and maize. The guaranteed price for potatoes throughout the year stimulated production resulting in a record crop. The acreage planted by members of the Mauritius Sugar Producers Association showed again a considerable increase on the programmed acreage for 1966, which was 708 arpents of full plantations and 3,406 arpents of interlines. Plantings for the year of maize, beans, potatoes, groundnuts and miscellaneous foodcrops amounted to 1,643 arpents of full plantations and 3,677 arpents of interlines. Total production from this acreage was 2,011.75 tons.

55. The six demonstration plots, operated by the extension services, continued to supply a wide range of planting material of food, fruit and forage crops. A substantial acreage was devoted to the cultivation of bananas, pineapples, cassava, sweet potato and fodder grasses. The acreage under the sugar-cane variety M.442/51, which was increased in 1965, helped to provide greater quantities of planting material to replace varieties susceptible to gummosis. Fertilizer and variety demonstrations were laid down on the more important crops and the effectiveness of recommended pest and disease control chemicals was demonstrated. Fruit trees and other planting material were available at all times for sale to the public. The demonstration of methods of keeping livestock on small farms and on husbandry were extended and accommodation was increased on certain stations, particularly for goats. Permanent pit silo demonstrations have been established at most of the centres.

56. Efforts to persuade small farmers of Mare Choisy to help themselves were continued. As a result of eight evening meetings, Rs 400 was collected and utilized in clearing Rivière Française and the main drains which were choked with water hyacinth and other weeds. Half a mile of waterway was cleared by this voluntary effort with resulting improvements in yield and in the duration of cropping. There appeared to be a revival of interest by schools in fruit trees and ornamental plantings.

57. The "Produce More Food Campaign" was extended to a further five villages and, as in the past, efforts were mainly directed towards the growing of fruit trees, foodcrops and the raising of poultry. The demand for birds of the recommended laying breed increased and over 7,400 were supplied at a subsidized price. Some 1,700 fruit trees were delivered as well as planting material of grasses, bananas, sweet potato, cassava, pineapple and acacia. Eleven Anglo-Nubian goats and 29 rabbits were sold to breeders. Some of the fruit trees planted early in the campaign have commenced to bear.

58. The F.A.O. Extension Expert continued to render valuable assistance by the in-service training of extension staff and assisting with lectures given to farmers, village groups and rural youth. The F.A.O. Associate Home Economist, with the assistance of the Extension Expert, organised two training programmes for Female Welfare Officers and Welfare Workers and assisted these trainees in setting up short course training programmes in their districts.

59. The Plaisance Demonstration Centre and Experimental Station were open to the public on the 29th and 30th October. The attendance was most satisfactory and visitors appeared to be particularly interested in the citrus, coconut and pineapple plantations and in the onion experiments.

60. The silage demonstrations in villages were continued and nine pits were filled. The resulting silage was generally of good quality and palatable. Cow keepers continued to show little interest in the silage produced and, as a result, this scheme will not be continued.

61. Very few requests were received from potato planters for spraying facilities for pest and disease control. Most planters, having appreciated the necessity for systematic pest and disease control, have purchased their own spraying equipment. 1,493 permits were issued for the purchase of certified seed potatoes and 721 tons of seed potatoes qualified for subsidy. A feature of the year's potato crop was the increased participation of large planters in production; some 535 tons of seed potatoes were purchased without subsidy. It is estimated that 1,260 arpents were planted to potatoes during 1966, this being a record. The yield was estimated at 8,490 metric tons, a record production with a mean yield of 6.7 tons per arpent.

62. The estimated foodcrop production of Mauritius again rose during the year. Production was estimated at 47,622 metric tons compared with 42,722 metric tons in 1965. The area harvested fell from 9,803 arpents in 1965 to 8,973 arpents in the year under review.

63. There was a substantial increase in the yield of potatoes due to generally favourable weather conditions. There were also substantial increases in the production of groundnuts, ginger and arrowroots. The production of cassava increased while that of sweet potato decreased together with beans and peas. Maize production remained constant compared with 1965.

64. At the Curepipe station the road system was extended and part asphalted. A further small area of land was cleared and planted to *Setaria*. Additional small areas of fallow land were planted under vegetables and bananas. Three acres of marshy land were drained and brought under cultivation. The potato store was improved by the installation of a fan for blowing air through the potatoes which also could be used for blowing a sprout suppressant through the potatoes. Trials with newly introduced grasses and legumes were continued as well as fertilizer, spacing and strain trials with *Setaria* and Elephant grasses. Citrus continued to give poor results under the climatic conditions at Curepipe while guavas continued to give satisfactory yields. The Arabica coffee, planted in 1963, flowered and fruited, the best trees yielding about 2½ kgs of cherry. Fertilizer, variety and spacing trials with the following foodcrops were carried out, namely *Colocasia esculenta*, potatoes, sweet potatoes, *Sechium edule*. Various vegetables were grown for seed production. It is interesting to note that, as a result of the *Sechium edule* trials, substantial improvements in yield can be obtained by field selection.

65. The ducks and geese, run in association with the fresh water fish ponds, continued to thrive as did the black swans received from the Australian Government in 1958. It is unfortunate that the latter have not yet laid any eggs. 1,179 tons of farmyard manure were supplied to the various stations of the Department.

66. At Plaisance, the citrus orchard, plantations of Malayan Dwarf and Pamba coconuts, mangoes, litchis and pineapples have continued to thrive. All varieties of grapes fruited were acid. The variety Citronelle, which is a good white, table grape does not thrive on its own root system, save at Abercrombie nursery. Efforts are being made to overcome this by grafting it on to root stocks such as Isabelle Vacoas, Isabelle Barkly and Couderc 13.

The citrus orchards were extended by the planting of Seminole and Minneole Tangelos and varieties of mandarins. Several of the citrus trees gave impressive yields of fruit. The Malayan Dwarf and Pemba coconuts flowered, the green Malayan Dwarf appeared to be the heaviest bearer, followed by the yellow and red varieties. The litchis have continued to make satisfactory growth and about one third of the orchard flowered but little fruit was produced. Fertilizer trials with pineapples indicated positive responses to nitrogen and phosphate in combination as well as phosphate and potash in combination. The mango orchard, which consists mainly of 'Maison Rouge', yielded about 23,400 fruit per acre all of which were retained for root stocks and the production of seedlings. Fertilizer trials were laid down with ginger, maize, beans and variety trials with onions, potatoes and sunflower. The onion trial was of interest in that yields of certain imported varieties were double that of the local Bombay Red onion. A range of vegetables was planted for seed production. The attendance on the two open days amounted to 2,300 people. The airport section continued to supply good quality fodder for the Curepipe Livestock Breeding Centre, 421 tons being harvested during the year.

67. At Reduit, the development of the station was completed in that all fields were provided with access roads as well as overhead irrigation. The station has been completely forced. The citrus orchard continued to yield valuable information on varieties, fertilization, pest and disease control. The Juddoo grapefruit continued to yield heavily, although it is extremely acid. Following Cyclone *Denise*, which blew down about 200 fruit, a severe attack of citrus canker occurred causing considerable damage, particularly to young fruit. The incidence of fruit drop was high and the majority of fruit was blighted by mites. The spacing trial on pineapples came into production towards the end of the year. The varietal banana collection was maintained. The peach varieties were grafted on to local stock. The pawpaw introductions failed to thrive. The sixteen avocado varieties made good growth and the five year old Kenya variety of Arabica coffee, K. 7, yielded 1,348 lbs of cherries equivalent to 221 lbs of hulled dry coffee per acre. The 'Citronelle' grape on three different root stocks was established for trial purposes and the strawberry introductions from Kenya were maintained. Grass and fodder trials were continued on Elephant grass, *Scleria* and a range of grasses that have shown promise in introduction plots. The introduction of grasses and legumes for trial purposes continued. Work on food-crops comprised variety trials with cassava, the propagation of groundnut varieties, a comparative trial of local maize with five varieties of hybrid maize introduced from Israel, potato trials, including new varieties from South Africa, and a fertilizer trial on beans. Certain of the Israel maize hybrids gave consistently higher yields than the local variety. As usual, various vegetables were grown for seed production.

68. At La Ferme, the established plots of Pangola grass and observation plots of various grasses were maintained and extended. Between February and April, some 50 tons of fodder were supplied to 125 cowkeepers of Palma and Bambous. Five hectares were established around the periphery of the area.

69. At Palmar, an onion variety trial failed through lack of water. The 60 acres of Pangola grass established on coral sand were maintained but grazing had to be discontinued at one period because of overgrazing. *Cenchrus ciliaris*, *Molopo stratus*, shows promise on both the sandy and brown soils on the station. *Bracharia brizantha*, Caylon, has not shown much promise to date. The enclosure of four paddocks with stone walls was completed. There was considerable regeneration of acacia in the walled paddocks in the absence of grazing. A start has been made on the planting of filao along the fence lines with a view to providing live fence posts in the future.

70. At Barkly, the seed store was enlarged and the seed testing laboratory extended together with the main and tool stores. The construction of a new seed and plant sales room was commenced. 26,700 lbs of seed were processed and 25 acres of the station were devoted to seed production. The station was the centre of vegetable seed production and controlled the seed producing acreage on other stations. It was also the centre for citrus propagation and for mist propagation, other than tea. The orchards were maintained and the litchi crop was very satisfactory. Sales of seeds and plants amounted to Rs 72,103 compared with Rs 71,534 in the previous year.

71. At Abercrombie, the grape variety Citronelle continued to show considerable promise. A very good mango crop was also obtained, the varieties Augusto, Arkside, Point and Eugenie yielding good quality fruit, in satisfactory numbers. The satisfactory crop is undoubtedly due to the control of pests and diseases achieved by regular spraying. To meet the demand, citrus propagation has been commenced on the station as well as nurseries for Malayan Dwarf coconuts, both of which will be on sale next year.

72. It was estimated that 155,000 people visited the Royal Botanic Garden during the year. The gardens were maintained satisfactorily and with the assistance of the Mauritius Herbarium, the identification and labelling of plants was continued. Towards the end of the year, a suggestion by the Royal Society of Arts that an advisory committee be set up for the maintenance of the gardens, was accepted. The nursery continued to provide plants for sale to the public at both the Abercrombie nursery and at Barkly station.

73. At Bois Marchand, ten acres of land were planted under pangola grass and 12 acres were cleared for planting which had commenced at the end of the year. The Pangola grass plots at Arsenal were maintained.

74. At Richelieu, an irrigation reservoir with a capacity of 180,000 cubic feet was constructed on land acquired from Chebel Estate and connected to the existing irrigation system on the station. Because of the elevation of this reservoir, it will be possible to irrigate the 40 acres of the station that were cleared and developed in 1965 by overhead irrigation without the aid of pumps. By connecting this system with the existing system in the northern half of the station, the whole station will be capable of being irrigated without the aid of pumps.

75. By the close of the year, it had not been possible to commence the pilot mixed farm.

76. The tobacco seed requirements of the country continued to be produced at Richelieu which, together with Pamplémousses, provided the research facilities for the tobacco industry. Methyl bromide continued to demonstrate its effectiveness as a soil sterilant for tobacco nurseries. It is no longer necessary for tobacco seed beds to be on a four year rotation. Permanent seed beds are all that is necessary provided they are sterilized annually with methyl bromide. The variety N.C. 95 has given good results in the field, having shown considerable resistance to soil borne diseases and nematodes. The Burley varieties, although resistant to soil borne diseases and giving fair yields of good quality tobacco, have not found favour with air-curers. The use of compost for surfacing seed beds, instead of farmyard manure, resulted in a much more even stand of seedlings. As a result of the shortage of irrigation water, both at the beginning of the year and towards the close of the year, the tobacco planting programme had to be drastically reduced. It was restricted to seed production and breeding plots plus a compost experiment in the first half of the year and to breeding only in the last quarter. The oriental tobaccos Samsoun and Soluk are improving, following repeated selection in the Black Shank resistant plots. Seven varieties of tobacco were imported and have been grown under quarantine conditions. The station continued to be the sole producer of tobacco seed and at least two years stocks are maintained against emergencies.

77. In continuation of the tobacco curing trials, a "major" model of the Anchor Oil Curing unit, imported from the United States of America by a local firm, was installed at Richelieu for test purposes. In the absence of station tobacco for curing, growers' leaf was introduced for test purposes. The average cost of curing was Rs 101 per cure, yielding over 450 kgs of tobacco. The cost of curing similar quantities of tobacco with fire-wood, in barns fitted with flues, is around Rs 200 and, using propane gas, is over Rs 350. All leaf produced on the station and at Pamplémousses was sold to the Tobacco Board and realised Rs 12,510.

78. The shortage of irrigation water curtailed the foodcrop experimental programme. On potatoes only two trials were possible, a variety trial and a compost experiment. A severe attack of blight adversely affected the variety trial and yields were lower than normal. The compost experiment was also affected by blight and was inconclusive. Comparative trials with hybrid maize, introduced from Israel, and the local variety gave interesting results in that certain of the Israel hybrids gave considerably higher yields of grain in a reduced crop cycle. The Israel hybrid 160 is a dwarf maize with slender leaves and stems and a three and a half month crop cycle, which showed promise for planting in raton interlines of sugar-cane. Yields of 160 were slightly better than that of the local variety, harvest being 40 days earlier. Observations on three Israel and five United States Department of Agriculture groundnut varieties, the former being confectionery varieties and the latter oil varieties, indicated that all varieties were of similar crop duration to Cabri, namely four months, and were in consequence capable of being planted in the interlines of virgin canes. Yields of all varieties were considerably greater than Cabri. The East African varieties Manipintar, Makulu

Red and Mgongo give better yields than Cabri, but having a longer crop cycle, can only be planted in pure stands. The eating quality and flavour of the confectionery varieties were superior to that of Cabri.

79. Towards the end of 1965, the groundnut varieties Cabri and Manipintar were planted experimentally in interlines of virgin cane in each interline or in alternate interlines, in single and double rows. The variety Cabri was harvested four months later while Manipintar was harvested five months after planting. The yield of Manipintar was adversely affected by the smothering action of the cane growth. It is quite clear that groundnuts, with a growth cycle greater than four months, cannot be cultivated in the interlines of ratoon cane without the yield being affected.

80. Nineteen varieties of sunflower were imported in 1965, all of which had a growth cycle of three months, save for the Israel variety which took four months to harvest. The seed obtained from the observation plots was used to plant alternate interlines of ratoon sugar-cane as they were harvested over the period July to November, the sunflowers received a fertilizer dressing and were irrigated as and when the sugar-cane was irrigated. Yields from these trials averaged 600 to 1,000 lbs per acre for the July and August plantings, yields were reduced and the plants were stunted in subsequent plantings because of lack of irrigation water. Similar trials were carried out on certain estates and the results were the same. There is little doubt that, subject to further experiments in 1967, including costings on sugar estates, sunflowers can be produced in quantity in the interlines of ratoon cane and could make a major contribution to supplying the oil requirements of the country. Groundnuts also, but to a lesser extent, will be able to contribute to the edible oil requirements of the country, provided the varieties chosen have a crop cycle of not more than four months and cultivation is restricted to the interlines of virgin canes or pure stands. There are also possibilities of the production of confectionery groundnuts which command a premium on the world's markets.

81. The citrus and mango orchards at Richelieu continued to make fair progress. The orchards are now all watered by an overhead irrigation system. White fly and scale insects continued to be a problem in the citrus orchard while Anthracnose was a major problem on the mango inflorescences.

82. The usual range of tobacco disease occurred but, in general, the incidence of diseases was not severe. This situation may alter somewhat in 1967 as a result of the build up which might follow the planting of a second season Amarello crop, which may extend into the middle of 1967. The tobacco virus complex was again negligible. The condition previously reported as tea yellows appeared again in December in scattered groups of plants following the application of weed killer in the interlines of young tea. Several cases of *Armillaria mellea* and *Ustilina zonata* were reported in May and had obviously occurred from dead wood left underground after clearing. The causes of poor germination in April/May plantings of potatoes were investigated and were the result of one of four diseases, improper seed treatment, excess of fungicides in seed dips and improper handlings of seed

potatoes. Potato leaf roll was prevalent on the variety King George from South Africa; the percentage incidence varying from 2—35. Observations were carried out on the occurrence of potato viruses, the varietal resistance to bacterial wilt and late blight. Various fungicide trials were carried out. On maize, rusts caused some damage early in the year and two fungicides were found to control leaf blotch and rust satisfactorily at Flacq. Fungicide trials were carried out to control various diseases on tomatoes, groundnuts, garlic and leeks, egg plant, beans, brassicas, lettuce and cucurbits. Both *Cercospora* leaf spot and Panama disease have caused damage to bananas while coconut leaf blight and fruit drop were common on Malayan Dwarf coconuts at Palmar. In May, ginger in the Creve Coeur area was severely affected by a leaf spot which is reported to have caused losses up to 25 per cent. Sunflower varietal susceptibility to bacterial wilt appeared to vary from 9 - 58 per cent, maturer plants tending to show greater resistance to the disease. All varieties recently introduced were susceptible to rust.

83. The Plant Pathology Division was responsible for plant inspection at points of entry and for the provision of phytosanitary certificates for export. 1,504 plant import permits were issued and 459 phytosanitary certificates for plants exported. 3,600 certificates of examination were issued for plant material or plant products imported into the island. Eight fumigation operations were carried out and 106 ships were met as well as 631 planes. The two plant quarantine greenhouses, to accommodate introductions other than sugar-cane, were maintained and a variety of economic and ornamental plants underwent quarantine. The sugar-cane quarantine greenhouse was operated on behalf of the Department by the Mauritius Sugar Industry Research Institute. A sugar cane quarantine cycle was completed at the end of the year and 41 varieties out of 44 were released. The new quarantine cycle commenced towards the end of the year and includes 43 varieties.

84. In spite of staffing difficulties, including the departure of the Assistant Entomologist on four years' study leave early in the year, considerable work has been done on biological control including the development of techniques for the mass breeding of predators, on the testing of new pesticides and the control of crop pests. The Entomologist has found time to give a series of half-hour scientific programmes on television, which were appreciated by viewers. Work has commenced on the preparation of a review of the work done in Mauritius from 1941 on the biological control of pests, the preparation of which was suggested by the Director of the Commonwealth Institute of Biological Control while on a visit to Mauritius.

85. A revision of the booklet on Pest Control recommendations was being done and a publication on citrus pests was being prepared.

86. Lectures were given to officers of the Extension Services on new pesticide developments and lectures in Entomology were given to the students of the College of Agriculture.

87. There is no doubt that considerable success has been achieved in the biological control of the potato tuber moth by the release of an egg parasite. There has been a marked decrease in the populations of the Giant

African snail in certain regions as a result of the liberation of *Euglandina rosea*. Some success has been obtained in housefly and stable fly control as judged by the reduced populations of these pests in certain areas. Biological control work has continued on fruit flies, Rhinoceros beetle, the potato tuber-moth and *Heliothis armigera*.

88. Some forty new pesticides were tested as to their suitability under Mauritius conditions and a number were found of value for the control of pests.

89. Analyses of the raw materials, imported for the manufacture of livestock feeds, were carried out by the Chemistry Division as well as analyses of the prepared feeds sold to the public. Analyses of fodder were continued but on a reduced scale. With the commencement of operations of a compost factory in Port Louis, periodic analyses of the compost produced have been carried out. Mature compost produced by this plant has a C/N ratio of 15 per cent, a moisture content of 30 per cent and a nitrogen per cent of dry matter of 0.6. Experiments were repeated on the de-watering of defecation scums using nylon bags of various mesh sizes as filters. Analyses of sunflower and groundnut varieties were carried out for oil content. Considerable variation was found in the oil content of the sunflower varieties, which varied from 20—45 per cent on a dry matter basis. The oil content of the groundnut varieties was more constant, ranging from 45—50 per cent on a dry matter basis. Various water samples were analysed, particular attention being given to underground water samples, carried out at the request of the United Nations Development Programme project. It was found that underground water had a high content of dissolved carbon dioxide, causing it to be slightly acid; on heating, the reaction of such water turned from acid to alkaline. Other work carried out for the divisions of the Department included oven drying samples of ginger, testing batches of soil for the tea division nurseries for acidity, carrying out a pH survey of the soils of Curepipe Station, analysing fertilizers, coral blocks and soil from Rodrigues as well as salt from Baie Topaze salt pans and determining the protein and ash contents of boiled sea slugs used for stock feeding in Rodrigues.

90. The Engineering Division was responsible for the servicing, repair and maintenance of all Departmental vehicles, tractors and machinery. At the Central Workshop, some 790 vehicles, tractors and machines were serviced and/or repaired. Miscellaneous equipment was made for divisions, including an experimental leaf transport trailer for the tea division, gates for Roche Bois quarantine station, an experimental hydraulic ram for the fisheries division, etc. The division was also charged with the construction of buildings provided for in the development programme. Two cattle sheds and one race connecting the Roche Bois quarantine station and the abattoir were completed, an arcon roof building at Reduit was converted from a workshop into a drawing office. Various repairs were undertaken to greenhouses, the livestock feed factory, offices and quarters. At the end of the year, the site works had begun on an insecticidal store at Reduit, a fisheries office, the extension of the livestock feed factory to house two grain dryers and garages at Wooton.

91. The Livestock Feed Factory sold 4,571 metric tons of livestock feeds, manufactured from imported raw materials save for molasses and a certain quantity of locally produced maize. Fifteen different kinds of livestock feed were on sale.

92. The enforcement of the fishery regulations and the collection of fish landing statistics were continued. With a view to increasing the efficiency of enforcement of the regulations and preventing the dynamiting of fish, the three mobile flying squads, set up in 1965, continued to do valuable work in preventing the use of illegal nets and explosives. Over 305 contraventions were established, 98 dealt with illegal nets and 31 with explosives. 129 metric tons of fish were landed of which 24.9 per cent were obtained by net fishermen. Landings have been similar in the past three years, which indicates that the efforts made to arrest the depletion of the lagoon and off shore fisheries has met with some success. If this average can be held for a few years, the measures being taken at present to conserve stocks such as restricted fishing in the reserves and the adoption of more selective methods of fishing should result in gradual improvement in annual landings within a few years.

93. Dr. Fougere, of the Fisheries Research Board of Canada continued to assist in the development of the fisheries of the island. The shark fishing project was terminated. By July, fishmongers had become aware of the fact that shark meat, processed or otherwise, was appreciated by at least one sector of the population and purchase by fishmongers of landed sharks at the established price increased. As a result, less shark was offered to the shark processing unit at Pointe-aux-Sables and justified the closing down of the unit. The project has achieved its objects namely to devise simple means of capturing sharks, to formulate suitable drying and salting techniques and to establish a system of purchase based on the relationship between the length of the shark and the weight of ready-to-process meat. The value of gill-nets in taking only mature fish and in yielding catches as large as that obtained by large seines continued to be demonstrated. An experiment, extending from October 1965 to October 1966, has demonstrated effectively that the gill-net, with 10 cm. mesh size measured diagonally was as effective as the large seine of equal length but with the usual mesh size of 7.5 cms. It was also established that the optimum length of a gill-net was 250 metres and that two such nets were an adequate replacement for a 500 metre large seine net. It was also established that No. 9 nylon thread was too weak to hold the larger fish in gill-nets. A comparison between a 10 cm. gill-net mesh and a 12 cm. mesh indicated that the former would give a greater weight of fish landed, because it was more effective in catching more fish of the smaller species which were able to pass through a 12 cm. mesh. The 12 cm. mesh was more effective in catching the larger species of fish.

94. The Beau Vallon barachois at Mahebourg is being developed with a view to identifying the problems concerned with the economic development of fish farming in barachois and to provide a site where trials with various types of fish and molluscs can be undertaken. Additional enclosures were constructed. The fish farm is linked with the sea by an open channel, situated near the shore, which leads down a corridor to a trap system by which fish may enter the farm but cannot escape. A large volume of sea

water flows in and out of the farm during the tidal cycle keeping the farm replenished with food and fry. With this experience, it appears clear that a fish farm in Mauritius can be organised to be independent of captive breeding stock. The investigation into the food conversion factor of crabs was continued. A similar investigation is under way with cordonnier, which is estimated to be the most prolific salt water fish in the waters around Mauritius. As it is a fast grower, this fish could, if adequately protected, supply the bulk of the protein to be harvested from the lagoon. Under natural conditions, this fish feeds principally on sea weed. Feeding experiments have demonstrated that it will readily consume salted shark meat, boiled rice, lettuce, carrot stems and tomato leaves. The mullet, which is a plankton eater, has not been included in feeding experiments. There are three generations of mullet in the barachois in large numbers, the oldest averaging about 2 lbs. Molluscs offer an economical source of protein food and shell fish farming undoubtedly deserves greater attention than it has had in the past. Having found a source of fresh water in the barachois area, it has been possible to create an area with water of correct density for the propagation of oysters. 1,000 dozen oysters have been placed in specially designed trays at mid-water level and are showing promising growth rates. Work has commenced on a relatively large species of mussel to be found on the south-westerly coast of the island. These have been successfully established on asbestos sheeting and appear to be thriving in the barachois and have spawned. Observations have commenced on the large *Perna* at Vieux Grand Port which appears to be a fast grower, easily attaining 2 inches in diameter in its first year of life.

95. The work at Mahebourg has aroused the interest of several persons of whom two are actively operating limited projects at Bambous Virieux and at Little Black River. The Bambous Virieux project is concerned with the systematic cultivation of oysters; after one year's work this oyster farm contains 24,000 commercial size oysters and over 2,000 spat collectors. The spat collectors that have proven satisfactory are of interest, being made of damaged rough tile piping, coated with a mixture of lime and sand. The coating can be peeled off easily with the young oysters and the damage to the oysters is minimal. At Little Black River, the project involves the operation of a fish farm, fresh sea water flowing in and out through a causeway fitted with gates. Crabs are being raised and mullets and cordonniers are being reared. Attempts to raise oysters have not been successful but there is the possibility of raising mussels, in which the proprietor has expressed an interest.

96. In the capital development programme: 1966-70, provision was made for the construction of three fishing boats during the first two years of the programme. In December, a contract was placed with Messrs. Taylor Smith & Co. for the construction of a 26-foot fishing boat equipped with echo sounder. In addition, plans were finalised for the construction of a 36 foot fishery research launch designed by the same Scottish yard as the 26 foot boat, and an offer to construct the vessel from Messrs. Taylor Smith & Co. was awaited. The preliminary specifications and layout for the 85-foot deep

sea fishery research vessel were finalised with the co-operation and assistance of the Director of Marine Services and his staff and were despatched by Messrs. Taylor Smith & Co. to their naval architects.

97. As in Mauritius, Rodrigues suffered dry weather in the first quarter of the year which delayed the planting of the main season maize crop until March. Drought conditions again persisted from September onwards. Besides affecting the maize crop, the drought seriously reduced the onion crop from an estimated 1,000 tons to an actual 755 tons.

98. It is estimated that the farming community of Rodrigues comprises some 4,000 families, who are mostly small farmers. At the end of the year, as a result of the land rehabilitation and development programme, 320 families were settled on the fertile alluvial valley bottom lands, 880 families on fertile terraced farms, 1,221 families on terraced upland farms, the fertility of about 800 of which was gradually being built up following the rehabilitation of the land. 38 families were settled on fertile dairy farms and 1,041 families were living off about 7,724 acres of abandoned, eroded land which they were farming on a shifting cultivation basis, involving no soil conservation measures and little manure. The remaining families were employed by Government, were in commerce or in fishing. The development programme in Rodrigues has resulted to date in some 1,659 families being provided with stabilised farms, recovered from eroded land, and capable of providing them with an adequate livelihood. An additional 800 families have occupied rehabilitated farms and are in the process of rebuilding the fertility of their land, which process will take two to three years of intensive work. There remain about 1,841 families to be provided with upland, lowland or dairy farms, recovered from eroded land. In five to six years time, provided the present rate of development is maintained, all families not employed in commerce or by Government should have been provided with farms ensuring them of a reasonable standard of living. The rehabilitation of eroded land, once erosion has been arrested, under Rodriguan conditions, depends upon an adequate supply of farmyard manure. This in turn depends upon the farmer possessing a cow or bullock, if he is to obtain manure in adequate quantities. There is an acute shortage of cows for new farmers, the present shortfall being over 600. It was hoped to get over this problem in the current development programme by purchasing calves of one week of age in Mauritius, rearing them on milk substitute and despatching them to Rodrigues at weaning. Difficulties have arisen in implementing this proposal because of the inordinate value placed on calves in Mauritius, which is partly due to the generally held superstition that unless the cow is nursing a calf it will not continue to produce milk.

99. The value of exports from Rodrigues has again risen; a record quantity of onions was exported. The pig exports remained constant and there was a small increase in the export of sheep and goats. There was a marked increase in the export of fowls. The value of Rodriguan exports over the past six years has risen by some Rs 600,000. When considering this rise, it should be borne in mind that there has been an increase in home consumption of such commodities as milk, meat, fish, etc.

100. In anticipation of a record onion crop, which would undoubtedly have exceeded 1,000 tons if weather conditions had been favourable, buying centres were built at La Ferme, Roche Bon Dieu and Citronelle. These buildings are interesting in that they have been constructed with a reinforced concrete frame, the walls being filled in with locally cut, coral blocks. The ceilings have been insulated with plastic foam, which has made a marked difference to the temperature inside the buildings during the warmer months of the year. The onion stores at La Ferme and Roche Bon Dieu were completed in time to handle the onion crop, which was purchased on behalf of the Agricultural Marketing Board by the staff of the agricultural division in Rodrigues.

101. The 1960-66 development programme came to an end in June and a new four-year programme commenced on the 1st July. The new programme follows the pattern of the old as laid down in the last years of the old programme. Provision has been made to speed up the rate of development which, if maintained as estimated, should complete the rehabilitation of all usable arable land in five to six years time. At the end of June, 3,772 acres of arable terraced land had been made available to farmers leaving a balance of 6,228 acres to be terraced. For intensive grazing purposes, 156 acres were developed up to the end of June leaving some 3,300 acres to be planted under pangola grass, after subdivision into quarter acre paddocks, for rotational grazing. 1,850 acres have been reafforested leaving some 1,200 acres to be planted. The cost of developing an arable terraced acre is on average Rs 1,500 while that of developing an acre of rotational paddocks planted in pangola grass costs Rs 1,200.

102. An adequate farm water supply is an essential prerequisite for mixed arable and dairy farming. As development has proceeded, it has been essential to develop small water sources, wherever they were found. It has also been necessary to protect the alluvial valley bottoms from flash floods, resulting from the erosion and deforestation of the uplands, by the use of catchment drains and diversion stone walls, contained in chain link mesh, in the beds of the streams. To conserve water some 39 dams and 28 water storage tanks have been built. It has also been necessary to instal 9 water pumps to elevate water from sources, which generally occur in the 300 to 600-foot countour belt, to storage tanks on top of the hills from which water can be fed down the valleys by pipes. A total of 361,854 feet of galvanised pipe of all sizes have been laid and some 1,230 water taps installed. During the year, while cutting coral blocks for building purposes an appreciable underground water supply, apparently contained in underground caverns of the Plaine Corail, was discovered. It also appears possible that springs may occur along the demarcation line where the coral overlay meets the volcanic soil underlying the Plaine Corail.

103. The six established breeding centres, one of which is included in the Agricultural Training Farm, were maintained. With the establishment of pangola grass at all stations, the cattle are being moved on to a system of night rotational grazing and away from soilage feeding. In order to increase the supply to farmers of livestock, particularly cows and young bullocks for fattening, two additional breeding centres are to be constructed during the

first two years of the current development programme in the eastern part of the island. One centre was commenced towards the end of the year on 60 acres of land at Batatran. The Government cattle herd at the end of the year comprised 522 head of all ages; 348 pigs of all ages were on breeding centres and 98 sheep of all ages were run on two islets in the lagoon.

104. The establishment of Malayan Dwarf coconuts on several islets in the lagoon was continued and intensified. Production has started on Isle au Chat and Gombrani. The islands also supplied breeding centres with a substantial amount of acacia seed for livestock rations.

105. The Marine Services set up an adequately equipped workshop in Port Mathurin with the co-operation of the Department, which supplied a substantial proportion of the necessary equipment. A section of the workshop was stationed at the headquarters of the Department at Citronelle.

106. A fisheries post was built at Port Sud Ouest and a Fish Guard has been stationed in Rodrigues throughout the year. It is hoped to recruit four Rodriguans for training as Fish Guards during 1967. Gill-net fishing appears to be finding favour in Rodrigues. A shallow draft lagoon patrol boat was transferred to Rodrigues.

107. The Agricultural Training Farm, established at Marechal at the end of 1964 and financed largely by the United Kingdom Committee for the Freedom From Hunger Campaign has continued to develop most satisfactorily under the able direction of the Reverend Father H. J. Smith. At the close of the year, the following buildings were completed and equipped, one Presbety, two dormitories each housing 20 trainees, a kitchen and store, a chapel, a laundry and farm buildings. The farm is equipped with a Land Rover station waggon and Ferguson tractor and trailer. In March, the original group of 18 trainees was increased by an intake of 22, bringing the number in residence to 40. It became possible during the year for the trainees to take over completely the operation of the milking herd of 60 cows and a piggery containing 20 breeding sows. The trainees are also required to tend a small garden for their own profit in their spare time, the proceeds of which go into their savings account. Buildings on the farm is now done entirely by the trainees under the supervision of carpenters and other artisans. With construction work, tending their own gardens and general farm work, the trainees are being taught to "learn by doing", which was the method laid down for the teaching of the trainees.

108. Attached to the Agricultural Training Farm is Isle aux Crabes where a small coconut plantation is being established, a flock of sheep run and from where the trainees are taught to use gill-nets and other methods of fishing, an important part of their training in a community which combines fishing with agriculture.

109. There is no doubt that the Agricultural Training Farm has made a niche for itself in the farming community of Rodrigues. In spite of its short existence it has become firmly established and will undoubtedly be of increasing benefit to Rodrigues as the years go by.

II. Boards and Committees

110. The Director of Agriculture or his representative served on the following boards and committees:

Agricultural College Advisory Board
Agricultural Marketing Board
Board of Agriculture, Fisheries and Natural Resources
Board of Examiners of the College of Agriculture
Board of Examiners for the Registration of Agricultural Chemists
Cane Release Committee
Comité de Collaboration Agricole—Maurice—Reunion—Madagascar
Customs Tariff Advisory Board
Cyclone and Drought Insurance Board
Fisheries Committee
Government Sack Factory Board
Irrigation Committee
Land Acquisition Board
Land Settlement Committee
Malaria Advisory Board
Mauritius Sugar Industry Research Institute Executive Board
Mauritius Sugar Industry Research Advisory Committee
Sugar Industry Rehabilitation Fund Committee
Sugar Industry Reserve Fund Committee
Sugar Millers' Rehabilitation Fund Committee
Sugar Planters' Rehabilitation Fund Committee
Tea Control Board
Tea Manufacture (Sugar Millers) Ltd. Board
Tobacco Board.

III. Board of Agriculture, Fisheries and Natural Resources

111. The Board functions under Ordinance No. 29 of 1957. The following advisory committees were set up by the Board for specific purposes:

- (a) The Cane Release Committee
- (b) The Fisheries Committee
- (c) The Irrigation Committee
- (d) The Land Settlement Committee.

112. The Board met on two occasions and heard reports from the Mauritius Sugar Industry Research Institute on the current position of the new virulent strain of gummosis on sugar-cane. It also considered the efforts being made in foodcrop production by estates and heard a report on the work being done with sunflowers in ratoon interlines of sugar-cane. A suggestion by the Royal Society of Arts and Sciences that a permanent advisory committee be set up to advise on the maintenance and development of the Royal Botanic Gardens was accepted, and subsequently approved by the Honourable the Minister of Agriculture and Natural Resources.

113. Two meetings of the Cane Release Committee were held at which six varieties of sugar-cane were approved for release in mid-year, namely M.442/51, M.99/48, M.409/51, M.13/53, M.13/56 and N.Co.376. In December, the variety M.377/56 was approved also for release in 1967.

114. The list of approved cane varieties for cultivation in 1966, Proclamation 20 of 1966, was as follows:

M. 134/32 (red, white and striped)	M. 409/51
M. 122/34*	M. 13/53
M. 423/41*	M. 13/56
M. 147/44†	Ebene 1/37
M. 31/45	Ebene 50/47
M. 202/46	B.H. 10/12*
M. 93/48	B. 3337†
M. 99/48	B. 34104†
M. 253/48	B. 37161
M. 442/51	B. 37172
	N. Co. 376

Following the review of the gummosis situation in December, it was recommended that the uprooting date for the variety M. 147/44 should be put back to the 31st December, 1973.

115. The Fisheries Committee met on three occasions, once to consider amendments proposed to the Fisheries Ordinance and regulations and twice to consider the renewal of large net licences. Following these meetings, the Fisheries Ordinance was amended with a view to preventing the taking of immature fish and checking the serious depletion that has occurred in the lagoon fisheries.

116. The Irrigation Committee met on nine occasions. It was concerned with the allocation of water for irrigation purposes from the Magenta canal and La Ferme and La Nicolière reservoirs, the repair of the Magenta canal to reduce losses, the allocation of irrigation water to new planters or increased allocations to planters with existing water rights. In mid-year the Committee decided that consumers of irrigation water from the Magenta canal should be put on the same footing as those supplied by La Ferme, namely consumers should only be required to pay for the water they used.

117. No meetings of the Land Settlement Committee were held.

IV. Mauritius Chamber of Agriculture

118. The Chamber of Agriculture continued to play an important role in the agricultural affairs of the country. Its representatives took part in the annual discussions in the United Kingdom in connection with the Commonwealth Sugar Agreement. It appointed a committee to administer the Sugar Industry Reserve Fund as well as nominated representatives to sit on numerous boards and committees. The work of this organisation was fully reported in its annual report.

*To be uprooted before 31st December, 1969

†To be uprooted before 31st December, 1970

V. Comité de Collaboration Agricole Maurice—Réunion—Madagasikara

119. The fifteenth annual meeting of the Comité took place in Madagasikara from the 15th to 22nd of November. Five delegates from both Mauritius and Réunion attended the meeting and six from Madagasikara. A comprehensive series of visits outside Tananarive was arranged enabling the delegates to see the Fiji disease trials at Manarano, which are of such importance to Mauritius and Réunion, the phytosanitary control at the port of Tamatave as well as experimental work in progress with bananas, and other fruits, coffee, sugar-cane etc. in the vicinity. The agricultural station at Lac Alaotra was visited and the work being carried out on fodder production, cassava, sugar-cane, rice, etc. proved of considerable interest. The programme for the exchange of visits in 1967 was agreed.

120. Among the visits sponsored by the Comité between the three territories were the following which were of special interest to Mauritius:

- (a) Visit by Mr. R. Antoine and Dr. C. Ricaud to Madagasikara;
- (b) Visit by Dr. J. E. A. Orian to Réunion and Madagasikara;
- (c) Visit by Mr. G. Mazery to Réunion;
- (d) Visit by 2 lecturers and six students to Réunion;
- (e) Visit by Mr. P. Guerandel and Mr. C. Delaitre and 12 third year students of the College of Agriculture to Rodrigues;
- (f) Visit by 5 delegates from Mauritius, namely Messrs. D. French-Mullen C.B.E., Dr. P. O. Wiehe C.B.E., L. Lincoln, H. Koenig and R. Antoine to the 15th Conference of the Comité in Madagasikara;
- (g) Visit to Mauritius by Mr. R. Marty from Réunion;
- (h) Visit to Mauritius by Mr. Leonce from Réunion;
- (i) Visit to Mauritius by Mr. Etienne from Réunion;
- (j) Visit to Mauritius by Mr. Appert from Madagasikara.

VI. College of Agriculture

121. The College is designed to provide trained scientists to meet the agricultural and sugar technology needs of the country. To this end, it offered two 3-year Diploma Courses, a 1-year Certificate Course in Tropical Agriculture and part-time courses in Cane Cultivation and Sugar Analysis. Owing to insufficient demand, the last mentioned course was not held this year. The demand for Diplomates exceeds the supply.

122. The teaching staff consisted of four lecturers and four assistant lecturers. Twenty-four part-time lecturers, drawn from the Mauritius Sugar Industry Research Institute, other divisions of the Department and other Government Departments, lectured in Sugar Technology, specialised branches of Agriculture, Engineering and Meteorology.

123. The work of the College was handicapped by the absence of four of the staff members, two of whom were on study leave abroad and two were transferred to act in senior posts in other divisions of the Department.

ENTRANCE EXAMINATIONS AND SCHOLARSHIPS

124. A record number of one hundred and fifteen candidates sat for the entrance examinations; thirty were admitted to the Diploma Courses and twenty seven to the Certificate Courses, eight in Tropical Agriculture and nineteen in Cane Cultivation.

125. For the first time, the Diploma entrance examinations were also held abroad but no candidate satisfied the Examiners. Three students from East Africa were admitted by direct entry, having been awarded scholarships by the Government of Mauritius.

126. The two entrance scholarships were awarded to Messrs. Gervais Pitchen and Narendras Teeluck and the Aime de Sornay Scholarship to Mr. Hervé Maingard.

STUDENT BODY

127. The number and distribution of students were as follows:

Course	1963	1964	1965	1966
Full-time Diploma (3-year) ...	47	48	57	64
Full-time Certificate in Tropical Agriculture... ..	—	—	6	8
Part-time Certificate in Cane Cultivation	17	18	25	19
Part-time Certificate in Sugar Analysis ...	11	9	8	—
Other part-time	3	—	3	4
TOTAL ...	78	75	99	95

EXAMINATION RESULTS AND LAUREATESHIPS

128. The results of the annual examinations, held in March, were as follows:

	1965		1966	
	Sat	Passed	Sat	Passed
Diploma in Agriculture, 1st Year	15	12	19	11
Diploma in Agriculture, 2nd Year	6	6	12	12
Diploma in Agriculture, 3rd Year	5	5	6	6
Diploma in Sugar Technology, 1st Year ...	7	6	7	6
Diploma in Sugar Technology, 2nd Year ...	6	6	5	5
Diploma in Sugar Technology, 3rd Year ...	9	9	6	6
Certificate in Tropical Agriculture	—	—	6	3
Certificate in Cane Cultivation	15	14	19	13
Certificate in Sugar Analysis	9	8	8	7

129. The nine students who failed the first Year Diploma examination were allowed to repeat the year. One student was awarded the Honours Diploma in Agriculture and three in Sugar Technology.

130. On the basis of the examination results, Mr. Samad Gopaul was awarded the laureateship in Agriculture and Mr. Gerald de Comarmond that in Sugar Technology. The former is now reading for a degree in Marine Biology at British Columbia University in Canada and the latter will join Cape Town University in March, 1967 to take a degree in Civil Engineering.

VISITS OF STUDENTS

131. Under the auspices of the Comité de Collaboration Agricole Maurice—Réunion—Madagasikara, six third-year students, accompanied by two lecturers, visited Réunion in July. All twelve third-year Diploma students

in Agriculture and two lecturers went on a ten-day study tour of Rodrigues in December to observe the land rehabilitation and development work being carried out by the Department on that island.

PRESENTATION OF AWARDS

132. His Excellency the Governor presented the Diplomas and Prizes on the 31st of August. After reviewing the year's work, the Principal gave a comprehensive survey of the historical background of the College and wished the University of Mauritius, which will take over the College in 1967, every success. The Minister of Agriculture and Natural Resources stressed the role of international co-operation among scientists.

ADVISORY AND ACADEMIC BOARDS

133. The Advisory Board met four times and the Academic Board six times. A Joint Board of Appeal was convened to hear an appeal from a laureate to be released from his bond; the appeal was allowed. The Advisory Board was particularly concerned with the rising costs of University education overseas and has had to recommend substantial increases in scholars' allowances, particularly in North America. The Board was also concerned with arrangements for the take-over of the College by the University of Mauritius, scheduled for 1967. The Academic Board was concerned with the review of the syllabuses for the Diploma Courses as well as that for the Certificate Course in Tropical Agriculture. The annual and final examinations for all courses were held under the responsibility of the Board.

VII. Arbitration and Control Board

134. The Control Board operated under the Sale of Canes (Control) Ordinance. The executive machinery of the Board was run as a division of the Department.

MEETINGS OF THE BOARD

- 135. The Board held twenty-five meetings during the year as follows:
- Three meetings in connection with the assessment of sugar to planters;
- Twelve meetings in connection with the protests against the assessment of sugar;
- Four meetings in connection with the changes of delimitation of factory areas;
- One meeting in connection with the installation of automatic weighbridges;
- Two meetings in connection with cane testing;
- Three meetings in connection with the rate of transport, the price of molasses, the refund of cost of transport and the closing down of weighbridges.

CANE TESTING

136. The number of tests carried out on the canes supplied by 239 planters or groups of planters and 134 miller-planter estate sections totalled 21,515. The tests were carried out at 22 factories. The corresponding figures for the 1965 crop were 25,835 tests in respect of 253 planters or groups of planters and 129 miller-planter estate sections, supplying canes to 22 factories.

ASSESSMENT OF SUGAR

137. Following the publication of figures of final assessment of sugar to planters for the 1965 crop, fifteen co-operative credit societies and nine planters lodged protests against the awards made by the Board. All the protests were considered and various measures were decided upon to remove the causes of complaint. However, in no case was the assessment varied except for certain planters in one factory area. In this instance, the assessment had been based on a private agreement between the planters and their miller but, as they were to receive less than the 68 per cent of the yield as specified in the Ordinance, the assessment had to be increased to meet the requirements of the law. Seven co-operative societies and two planters withdrew their protests.

COST OF PRODUCTION

138. Questionnaires were forwarded to one hundred planters, selected according to the weight of cane produced, and to the twenty-three sugar estates with factories to secure the data necessary for the computation of costs of production.

TRANSPORT COSTS

139. Prior to the crop, a schedule of rates of transport was forwarded to sugar estates with factories showing the maximum rate claimable by millers for the transport of planters' canes from the various outlying weighbridges to the factory in each factory area.

140. The schedule was based on the following formula for transportation by road:

$$C = Rs (2.40 + .16m)$$

where 'C' is the cost of transport per ton of cane and 'm' the number of miles over which transport is effected.

141. According to law, the transport of planters' canes by millers by light railway is claimable at the road rate and limited to the cost of transport over a maximum of four miles. Millers reimbursed planters for expenditure incurred in the transport of their cane over distances in excess of four miles at a rate fixed by the Board of Re 0.16 per ton/mile.

DELIMITATION OF FACTORY AREAS

142. Eight applications for changes of delimitation of factory areas were received; all were either rejected or not entertained.

PERMITS TO MIDDLEMEN

143. Permits were issued to forty-four middlemen for the crop.

COMPLAINTS AGAINST MIDDLEMEN

144. There were thirty-two complaints against middlemen by planters. The majority of the disputes were settled between the parties concerned in presence of an officer of the Board.

145. Middlemen, to whom instructions had been issued as to the way their books were to be kept, were requested to call at the Board with their books for examination. Those who failed to conform to the requirements laid down were given a warning.

CANE CONTRACTS

146. There were 12,085 contracts registered. The total number of contracts in force was 15,327, covering some 28,400 planters.

BREACH OF SALE OF CANES (CONTROL) ORDINANCE

147. Nine cases of Breach of Sale of Canes (Control) Ordinance were reported to the Police.

148. The number of planters who failed to enter into contract before the 31st of May totalled 750. In 1965, the number of planters who had failed to enter into contract in due time was 1,101. One planter was prosecuted and fined for the late signing of contract.

CANE VARIETIES

149. During the year under review the varieties approved for planting were the following:

M.134/32 (red, white and striped), M.112/34, M.423/41, M.147/44, M.31/45, M.202/46, M.93/48, M.99/48, M.253/48, M.442/51, M.409/51, M.13/53, M.13/56, Ebene 1/37, Ebene 50/47, B.H. 10/12, B.3337, B.34104, B.37161, B.37172, N.Co.376.

CONTROL OF CANE WEIGHBRIDGES

150. The number of weighbridges in operation was 114, compared with 116 in 1965, two having closed down with the Board's approval. All the weighbridges were tested for accuracy prior to the beginning of the crop; 112 were found to be correct on first examination. Two additional inspections were made in each case for the two remaining weighbridges which were found to be incorrect on first examination; these two weighbridges were not used for weighing sugar-cane during the crop.

SURPRISE CHECKS CARRIED OUT AT WEIGHBRIDGES DURING THE CROP

151. During the crop, 902 surprise checks were carried out and 818 vehicles were re-weighed (225 carts and 588 lorries). In six cases the weighing was found to be incorrect and the weighers prosecuted.

VIII. The Sugar Industry

CROP RESULTS

152. The total area under cane was 206,000 arpents of which 195,740 were reaped, compared with 207,000 and 194,000 arpents respectively for 1965.

153. A cyclone on the 7th of January, with wind velocities well above the limit at which damage starts, maximum temperatures as well as the daily temperature range consistently below normal and a rainfall deficiency, combined to produce unfavourable conditions throughout the growing season. Climatic conditions were generally favourable to the maturation of cane. Sugar production was disappointing, falling short by one hundred thousand tons of last year's production. 561,760 metric tons of sugar were produced compared with 664,402 metric tons in 1965. The yield of sugar per arpent

was 2.88 metric tons compared with 3.42 in 1965. The average hourly and daily crushing rates were 97.3 and 1,904 metric tons respectively, compared with 100.6 and 2,040 metric tons in 1965.

CANE VARIETIES

154. In order of importance, the main varieties making up the 1966 crop were the following: M.147/44, M.93/48, M.202/46, B.37172 and Ebene 1/37. They accounted for about 73 per cent of the crop; the remaining 27 per cent was made up of Ebene 50/47, M.134/32, B.3337, M.31/45 and other varieties.

QUOTAS AND PRICES

155. The negotiated price quota for the calendar year 1966 under the Commonwealth Sugar Agreement was 380,000 long tons at the price of £47-10-0 compared with the 1965 price of £46-11-6 for 380,000 long tons. The sugar sold on the free market amounted to 136,790 long tons. In all, 561,559 long tons of sugar were exported, and 28,520 long tons consumed locally.

SUGAR EXPORTS

156. The exports of sugar were as follows:

<i>Destination</i>				<i>Long Tons</i>
United Kingdom	...	...	...	424,769
Canada	...	...	...	111,970
U.S.A.	...	...	...	14,500
Malaysia	...	...	...	10,320
TOTAL				561,559

MOLASSES AND ALCOHOL

157. The production of molasses amounted to 133,284 metric tons. During the year, 127,522 metric tons of molasses were exported; in the exports are included molasses carried over from the 1965 crop. About 8,000 tons of molasses were used in the manufacture of rum and various other alcoholic products and the balance was applied as fertilizer. The total production of alcohol, reduced to 100° G.L. was about 1,462,000 litres, the greater part of which was used locally as rum, denatured spirit and in the manufacture of vinegar. 23,766 litres were exported.

MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE

158. The institute continued to provide the research services for the industry and undertook extension work amongst the larger farmers. The Department of Agriculture was responsible for extension work amongst small cane farmers. Throughout the year, close liaison was maintained between the staff of both organisations and the research findings of the Institute were thus made fully available to the small farmer. The work of the Institute is fully recorded in its annual report.

THE SUGAR INDUSTRY REHABILITATION FUND

159. This fund, together with the Sugar Millers' Rehabilitation Fund and the Sugar Planters' Rehabilitation Fund, continued to serve the industry. The latter fund operated the Mechanical Pool and the Cane Nursery at

Pointe-aux-Sables and, in co-operation with the industry, established subsidiary cane nurseries in certain factory areas. Unfortunately small planters did not take advantage of the planting material made available to them at the subsidiary nurseries. The nurseries supply disease-free planting material and cuttings of newly released varieties to planters while the Mechanical Pool supplies heavy tractors with equipment for the clearing and de-stoning of land.

IX. Tea Industry

TEA CONTROL BOARD

160. The Board which was established under the Tea Industry Control Ordinance No. 29 of 1959 as amended by Ordinance No. 29 of 1961 and Ordinance No. 37 of 1963, held regular meetings throughout the year. The main items with which it was concerned during the year were: the loss of crop due to the great number of public holidays occurring during the peak cropping months, local market quotas and the sale of tea to the Republic of South Africa. As in previous years, the Board continued by all means within its power to press for improvements in the standard of plucking, handling of plucked leaf and manufacture. It also continued, though on a reduced scale, its "Drink More Tea" campaign. The post of Executive Assistant remained vacant for the greater part of the year, thus limiting the number of visits that could be paid to factories and plantations.

STATISTICAL

161. The Board continued to issue quarterly and annual statistical reviews.

MANAGING AGENCY

162. "La Chartreuse Tea Marketing Co-operative Society Ltd" continued to act as Government's Managing Agents in respect of La Chartreuse Tea Factory. In December, the daily leaf intake of the factory was in the vicinity of 45,000 lbs of green leaf which is the maximum the factory can absorb. In consequence, part of the crop from the Tea Experimental Station, Wooton, had to be sent to another factory.

163. In early December, the Managing Agents intimated to Government that they intended to exercise their option to purchase the factory on the 1st January, 1967.

CLIMATE

164. Generally, climatic conditions were favourable for the production of tea, although cyclone *Denise*, in the second week of January, reduced the crop for that month by some 10 per cent. Rainfall for the year, as measured at the Tea Experiment Station, was some 25 inches below normal totalling only 118.40 inches, the months of May, September, October and November being particularly dry. It should be noted that there were 22 consecutive dry days in September/October, the longest previous period recorded with no rain being 14 days in November, 1956. However, rainfall was sufficient to keep the tea flushing although the growth of young tea was adversely affected by a shortage of rain.

TEA FACTORIES

165. Mare Anguilles tea factory resumed production after being re-equipped with withering troughs, "Triturator", "C.T.C." and "Skip Fermenting" equipment. The other six factories continued normal production. Work was commenced on the building of a new factory on Crown Land Dubrueil intended to deal with the leaf from the Smallholdings Development Project. This factory is being financed by the Sugar Industry and will have an eventual capacity of $1\frac{1}{2}$ million pounds made tea per annum. It is to be equipped with withering troughs, "Rotovane", "C.T.C." and "Skip Fermenting" equipment.

MAURITIAN TEA

166. Production rose by 523, 691 lbs, 12 per cent over last year and totalled 4,353,039 lbs compared with 3,829,348 lbs in 1965; approximately 30 per cent of the total production was consumed locally, the remainder being exported, mainly to the United Kingdom, although during the last quarter of the year, the Republic of South Africa had started to purchase substantial quantities of tea. The quantity of tea sold on the London Market was 21,212 chests compared with 17,975 chests in 1965; the average price obtained per pound was 3/5.18 d compared with 3/8.32 d in 1965, a reduction of 3.14 d. It must be borne in mind that the average sale price of all tea sold on the London auctions dropped by 1.31 d from 4/2.17 d to 4/0.86 d during the same period. 1,018 chests were offered for sale at the Nairobi auctions; the sale of tea by private treaty increased as a result of sales to South Africa, 96,530 lbs being sold in this manner, mainly during the last quarter of the year.

DEVELOPMENT PROJECT

167. The first Tea Development Project, which was commenced in 1956 was designed to develop 3,000 acres of new land under tea during the five years 1956-61. As a result of setbacks from the 1960 and subsequent cyclones, the scheme was extended on several occasions and the final clearings were only completed late in 1966. The total area of land developed under this scheme has been: private land 212 acres; Crown Land leased to medium scale planters (50-300 acre holdings) 1,980 acres; Crown Land developed by Government and leased as smallholding 289 acres, a total of 2,481 acres.

NEW DEVELOPMENT PROJECT

168. The second Tea Development Project was commenced in 1962 and envisaged the planting of 500 acres of Crown Land per annum by Government for distribution, when established, as smallholdings of about 4 acres each. In the current development programme (1966/70), the annual target was increased to 1,000 acres of land cleared and planted per annum.

169. By the end of the year, a total of 3,906 acres had been contour-surveyed, 2,877 acres cleared, 2,433 acres prepared for planting and 2,192 acres planted of which 638 acres were planted in 1966. Sections 1, 2, 3, 5, and 6 comprising 530 acres, at Crown Land Dubreuil, planted in 1963,

were distributed as 132 smallholdings, each of approximately 4 acres in extent. Three hundred and thirty-five smallholdings have been distributed to date.

TEA SEED

170. 40,000 lbs of first grade tea seed were imported from Tanzania and 20,582 lbs from Malawi. The harvest from local seed gardens was again affected by cyclone 'Denise' in January; however 16,460 lbs of seed were harvested from the 35 acres of tea seed gardens in bearing compared with 8,280 lbs in 1965. The total area of tea seed gardens remains at 69 acres, located as follows:

Crown Land de Rauville	...	...	...	23 acres
„ Salazie	...	...	...	15 „
„ Ajudha	...	...	...	10 „
„ Midlands	...	...	...	9 „
„ Parc-aux-Cerfs	...	...	...	9 „
„ Les Mares	...	...	...	1 „
Reducit Experiment Station	...	...	...	1 „
Curepipe Experiment Station	...	...	...	1 „
				69 acres

171. As a long term project some work on the selection of seed bearers of selected crosses was initiated during the year.

TEA EXPERIMENT STATION

172. Climatic conditions, although not ideal, were reasonable for leaf production, though the dry spells in April/May and September/October/November did affect the growth of young tea plants.

173. The table below shows the monthly distribution of rainfall for the year compared with the average for the last 16 years.

			16-year average ins. per month	1966 ins. per month
January	...	...	18.09	21.58
February	...	...	16.94	6.63
March	...	...	20.69	15.05
April	...	...	13.06	4.68
May	...	...	9.89	3.01
June	...	...	11.51	19.53
July	...	...	10.91	11.82
August	...	...	9.75	10.84
September	...	...	7.29	3.22
October	...	...	6.19	2.03
November	...	...	6.86	5.11
December	...	...	13.28	14.90
TOTAL			145.05	118.40

174. Since October, 1965, daily records have been kept of the soil temperature at depths of 4", 8" and 12"; it was noted that the soil temperature up to June, 1966, did not fall below 20°C. It is hoped that with more complete records of rainfall, sunshine, air and soil temperatures it may be possible to correlate these factors to crop yields.

175. The total green tea leaf harvested from the 69.74 acres of tea in bearing (11-15 years old) for the crop year 1965-66 was 356,978 lbs, a modest increase of 13,106 lbs over the previous year. Monthly yields in pounds of

green leaf and the percentage of the total crop for the crop year 1965-66 compared with the two previous crop years were as follows:

<i>In 1963-64</i>				<i>In 1964-65</i>				<i>In 1965-66</i>			
		<i>lbs</i>	<i>%</i>			<i>lbs</i>	<i>%</i>			<i>lbs</i>	<i>%</i>
July ...	...	3,597	1.500	2,919	0.848	8,751	2.45				
August ...	...	—	—	3,592	1.044	244	0.07				
September ...	...	478	0.200	8,108	2.357	13,350	3.74				
October ...	...	34,303	14.312	28,720	8.352	26,243	7.35				
November ...	...	22,826	9.523	31,972	9.298	22,536	6.31				
December ...	...	35,863	14.962	53,550	15.573	55,145	15.45				
January ...	...	30,289	12.633	53,982	15.698	44,373	12.43				
February ...	...	36,222	15.112	52,353	15.224	59,762	16.74				
March ...	...	30,033	12.529	47,929	13.941	41,293	11.62				
April ...	...	31,925	13.319	34,422	10.010	39,831	11.15				
May ...	...	7,944	3.315	17,673	5.139	29,585	8.29				
June ...	...	6,220	2.595	8,652	2.516	15,665	4.40				
TOTAL ...	...	239,700	100.000	343,872	100.000	356,978	100.00				

Average yield of Green Leaf in lbs per arpent

<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>
3,437	4,931	5,120

176. It will be noted from the table showing the monthly crop that the percentage of the total crop harvested during the winter months May to September has, with the exception of August, been increased, with of course a corresponding reduction of the percentage of leaf harvested during the early and late summer months, namely October/November and March/April. This alteration in crop pattern has, it is believed, been achieved by giving the tea a light skiff during the second half of March and applying 100 lbs 15:15:15 granulated NPK fertilizer together with 100 lbs sulphate of ammonia per acre in early May as opposed to the more traditional pruning or skiffing in June/July. However, it must be realised that any pruning carried out in March, a month which normally yields some 12-13 per cent of the annual crop, must be of a light nature, if the total crop is not to be seriously affected. The following table gives the comparative yields of tea light skiffed in March and July for the period March to December 1966:

<i>Pruned area light skiffed on 15 March, 1966</i>				<i>Pruned area of similar age spacing and fertilizer treatment light skiffed on 17th August, 1966</i>			
<i>lbs/acre</i>				<i>lbs/acre</i>			
Crop of green leaf plucked in March up to 15th ...				698			
April ...	...	...	452	457			
May ...	...	...	502	478			
June ...	...	...	209	209			
July ...	...	...	212	54			
August ...	...	...	252	33			
September ...	...	...	554	—			
October ...	...	...	986	862			
November ...	...	...	1,055	395			
December ...	...	...	1,375	1,313			
5,916				4,499			

177. Further trials will be necessary before any general recommendation can be made.

178. Yields during the first six months of the present crop year, 1966-67, show a considerable increase over the yields for the corresponding period last year and, provided weather conditions remain favourable, the harvest this season should be even greater than last.

VEGETATIVE PROPAGATION

179. Trials of various rooting media continued; the mixture 1:1:1 of rock sand, well rotted compost and resinless sawdust continued to give the best results. It was found that bagasse ash from sugar factories can be substituted for rock sand and soil for compost in the rooting media, always provided the pH of the mixture was kept below 5.5.

180. A trial was conducted to determine if there was an optimum season for the rooting of cuttings. 100 cuttings of Clone 1H were taken each month throughout the year; the percentage success varied from 97 per cent for cuttings taken during the period November to April to 40 per cent for cuttings taken from May to October.

181. A trial was also carried out to determine if it was possible to save space in the Mist Propagator by closely planting cuttings in boxes until callused and then transplanting into individual polythene tubes. This first trial gave promising results but it was noted that insufficient light had an adverse effect on cuttings planted in this manner.

182. A fertilizer trial with N P & K alone and in combinations was laid down on VP plants commencing 5 months after the cuttings had been planted and when they had developed 2 to 3 leaves, applications of fertilizer being made monthly.

The treatments were:

- (1) Control, no fertilizer
- (2) 2 grams sulphate of ammonia
- (3) 1 gram muriate of potash
- (4) 1 gram triple superphosphate
- (5) 2 grams sulphate of ammonia + 1 gram muriate of potash
- (6) 2 grams sulphate of ammonia + 1 gram triple superphosphate
- (7) 2 grams sulphate of ammonia + 1 gram muriate of potash + 1 gram triple superphosphate
- (8) 2 grams 15:15:15 granulated NPK fertilizer

183. Observations on growth were made monthly. After the third month, it was evident that the 15:15:15 granulated fertilizer, treatment (8), was giving the best results followed closely by the NPK mixture, treatment (7). Plants treated with N alone, treatment (2), showed some benefit but the plants treated with P & K alone, treatments (3) & (4), showed an adverse effect as compared with the control, treatment (1).

184. The selection of clones both at Wooton, on other Government properties and private plantations continued; a total of over 300 clones are at present under trial. Clone 1H continues to show great promise and is being multiplied as quickly as possible so that it can be tested on a field

scale. The following 10 other clones are also showing promise in quality as well as yield: 6W257, 7W1B58, 10W1B58, 2W5B58, 12W5B58, 16W5B58, 5W6/58, 8W6/58, 9W6/58 and 10W6/58.

185. The second Mist Propagator and "Mac Penny" weaning unit, reported as having been constructed last year, were both put into operation.

186. The pruning experiment reported last year continued; results will not however be available till the end of the second cycle in 1969.

EXPERIMENTS ON TEA SEEDLINGS IN THE NURSERY

187. At Wooton and at Crown Land Vuillemin observational fertilizer trials on three months' old tea seedlings in the Nursery were laid out with the following treatments:

- (1) Nil
- (2) sulphate of ammonia
- (3) triple superphosphate
- (4) muriate of potash
- (5) sulphate of ammonia and triple superphosphate
- (6) sulphate of ammonia and muriate of potash
- (7) triple superphosphate and muriate of potash
- (8) sulphate of ammonia and triple superphosphate and muriate of potash
- (9) sulphate of ammonia, triple superphosphate, muriate of potash and magnesium sulphate,

applications of fertilizer being made monthly at the following rates:

sulphate of ammonia	...	40	grams	per	100	sq	feet
triple superphosphate 45%	...	12	do	do			
muriate of potash	...	10	do	do			
magnesium sulphate	...	10	do	do			

188. The treatments were randomised in seven replicates at Wooton, two started on the 29th of January and 5 on the 12th of July, while at Crown Land Vuillemin treatment started on the 7th July. From eyescoring and from the measurements of growth in height at monthly intervals, it was evident that there was no response whatsoever during the first two to three months, thereafter nitrogen, especially in combination with potash and the other elements had a beneficial effect on growth. By December the seedlings receiving the complete NPK mixture had produced 10 to 13 leaves, with heights varying from $8\frac{1}{2}$ to $12\frac{1}{4}$ inches, whereas those receiving P & K alone produced only 4 to 6 leaves and were only $3\frac{1}{4}$ to 5 inches high. Magnesium sulphate has not shown any striking effect, compared to the NPK mixture.

189. An experiment with N, P, K and Nitroform, a propriety brand of slow acting Nitrogen fertilizer, in combination within 4 replications has been laid down on 3 months old seedlings at Crown Land Rivière du Bois with the object of finding out the effect, if any, of Nitroform.

190. Simazine (50 per cent wettable powder) was again tried as weed-icide on beds in the Nursery at Wooton in the strengths of 2 lbs, 8 lbs and 4 lbs in 200 gallons of water per acre, applied a fortnight before planting

This observational trial was laid down in 4 replicates in late January and fifteen days after the spray, tea cuttings and tea seeds were put in. By mid March, it was observed that ordinary weeds like *Oxalis*, etc. had nearly covered all the beds not sprayed with Simazine but that the application of 2 lbs Simazine restricted the growth of weeds for a further 2 months, while 4 lbs of Simazine per acre suppressed the weeds for approximately 6 months and had no injurious effect on the tea plants.

FERTILIZER EXPERIMENTS ON MATURE TEA

191. (a) The 3^3 factorial experiment, started in Field 9 in October, 1963, in a single replication with NPK confounded at the following levels:

N	P	K	
0	0	0	} lbs per acre
40	23	30	
80	45	60	

was continued but in 1966 with different levels of N, P & K, split in two applications as hereunder:

N	P	K		
0	0	0	} lbs per acre	N in the form of sulphate of ammonia
60	30	30		P in the form of triple superphosphate
120	60	60		K in the form of muriate of potash

The first application was given on 3rd of October, 1965 and the second in February, 1966.

The field was deep skiffed on 27th of June.

The results are summarised below:

YIELDS OF LEAF IN LBS/ACRE

		P0	P1	P2	K0	K1	K2	Means
N0	...	3948.5	3985.5	4220.9	4239.8	4066.9	3848.2	4051.6
N1	...	4765.2	4662.2	5453.3	4930.2	5063.1	4887.5	4960.2
N2	...	5359.6	5361.4	4803.5	5034.0	5082.4	5408.0	5174.8
P0	...	—	—	—	4368.7	4895.4	4809.2	4691.1
P1	...	—	—	—	4581.3	4710.2	4717.7	4669.7
P2	...	—	—	—	5254.0	4608.8	4616.9	4825.9
Means	...	—	—	—	4734.6	4737.5	4714.6	—

L.S.D. between means at 5% = 382.5 lbs/acre

1% = 529.0 lbs/acre

0.1% = 731.2 lbs/acre

Yield of Control = 4250.4 lbs/acre

192. Nitrogen has had again a direct and cumulative effect on yields of green leaf and the increases obtained were linear. Since 1964, the yield from plots without nitrogen has gradually decreased each year. There has been a significant increase in yield due to the applications of nitrogen. The overall effect of phosphate and potash is not so striking yet, in some plots, in combination with Nitrogen both elements have given significantly higher yields compared with no phosphate or potash.

193. It is regretted that the trials in Fields 1A and 1B, commenced in 1964, with the object of finding out the requirement of NPK fertilizer by mature tea for maximum yield had to be abandoned.

194. The fertilizer trial to test the relative merits of five different treatments with N, P & K, commenced on 1st September, 1964, in Field 1B on Malayan jat, was continued. This experiment consisted of 4 blocks, of 5 plots each, with the five treatments randomised which were:

T1	=	No fertilizer	
T2	=	400 lbs of sulphate of ammonia	per acre
T3	=	400 lbs of do	+ 100 lbs triple superphosphate per acre
T4	=	400 lbs of do	+ 100 lbs muriate of potash per acre
T5	=	400 lbs of do	+ 100 lbs triple superphosphate + 100 lbs of muriate of potash per acre

The mean yields of green leaf in lbs per acre were:

T1	=	4229.5
T2	=	5391.1
T3	=	4601.3
T4	=	5656.2
T5	=	5104.0

L.S.D. for P = .05 = $\pm$ 662.5 lbs/acre

L.S.D. for P = .01 = $\pm$ 928.8 lbs/acre

Nitrogen, either alone or in combination with potash produced significantly higher yields. It is also evident that phosphate reacts better when it is in combination with both nitrogen and potash.

COMPARISON OF JATS FOR QUALITY OF MADE TEA

195. The comparison of the various jats of tea grown at Wooton was continued, leaf from bushes of the same age being made with the Pizey Roller once a month during the period January to May, 1966 and sent to Nairobi for tasting.

196. The taster's reports are given below in the following order:

1. Local jat (China hybrid)
2. Malayan jat
3. Nyasaland jat
4. Special Assam jat

January 1966:

1. Good strength and colour with useful quality and briskness.
2. Is lacking in colour but has good quality and pungency.
3. Has good strength, colour and quality with pungency.
4. Very bright with good strength.

February 1966:

1. Bright and quite attractive character, quality is very fair. The leaf is black with some golden tip.
2. Coloury but not above plain quality and less bright than No. 1. The leaf is black with very little tip.
3. Nice character and quality with adequate colour. A black leaf with some tip.
4. Good colour and the quality is above average. A black leaf with quite a lot of tip.

March 1966:

1. Bright with very useful briskness and pungency. The leaf is black with some tip.
2. Full, coloury with fair brightness. Fairly tippy leaf and black.
3. A full bodied liquor and quite bright. Excellent quality and useful briskness. The leaf contains some golden tip and is very black.
4. Strong, pungent with very good quality and adequate colour. This is a most useful liquor and best so far. The leaf is less black than No. 3.

April 1966:

1. A very good quality tea with useful briskness and some flavour. The leaf is black with some reddish tinge.
2. Liquor is quite brisk and bright with useful strength and attractive quality. The leaf is very satisfactory.
3. Adequate colour and strength. Pungent with nice character. The leaf is fairly tippy.
4. Is the least bright but still quite a brisk colour with very fair quality. Fairly tippy leaf and black.

May 1966:

1. Bright with useful quality and a touch of flavour. Blackish brown leaf with good twist.
2. Light but less bright than No. 1 and is rather empty. Leaf is blacker with fair twist.
3. A little lighter than No. 2. The leaf is brownish with good twist.
4. Very similar to Nos. 2 and 3. Leaf is brownish black with a good twist. Without doubt No. 1 is the best of this assortment.

197. From the taster's reports, it is clear that the quality of tea produced from the local jat is as good from the others.

NEW TRIALS

198.—(1) Copper sulphate, zinc sulphate and magnesium sulphate are being tried on mature tea in Field 9. The sulphates were sprayed at the rate of 5 lbs in 200 gallons of water per acre on the 25th of October, when the new shoots had sprouted well after pruning, but were not yet ready for the first tipping.

(2) Nitroform, a propriety brand of slow acting nitrogenous fertilizer recently available on the local market, is being compared with sulphate of ammonia on mature tea in Field 6.

(3) Two fertilizer trials with NPK on young and mature tea respectively were commenced in September on the fields of a Tea Project Planter at Crown Land Dubreuil.

LEGUMINOUS AND OTHER PLANTS

199.—(1) Seeds of *Centrosema pubescens*, *Calopogonium mucuoides*, *Pueraria javanica*, *Tephrosia vogelii*, *Crotalaria anagyroides*, *Crotalaria labrunifolia*, *Crotalaria usaramoensis*, *Desmodium ovalifolium*, *Phaseolus mungo* and *Mimosa invisa* were received from abroad and sowed in drills on the 14th May at Wooton.

Of the above, only *Crotalaria anagyroides* and *Crotalaria labrunifolia* are growing very well, followed by *Mimosa invisa*, and *Pueraria javanica*, the remainder having died.

(2) Seed of *Hakea Saligna*, recommended as a windbreak in East Africa, was received from Africa and sowed both in the greenhouse and in the open at Wooton on the 10th December. More than 75 per cent germinated in the greenhouse within a fortnight from the date of sowing whereas, in the open, germination was very poor.

GENERAL

200.—(1) Shears for plucking tea were received from the Far East and compared with hand plucking at Wooton from February to July. Fifty to 80 per cent of bad leaf was plucked when using shears.

(2) With the assistance of the Mauritius Sugar Industry Research Institute, soil samples were taken for analysis from Wooton Tea Experiment Station and from the field of a Tea Project Planter at Crown Land Dubreuil with the following results:

			Ca	Mg	O.M.	C/N	N	Kp	H	
Wooton	{	Topsoil ...	...	0.5	0.7	9.3	17.4	0.31	0.26	5.2
		Subsoil ...	...	0.2	0.2				0.15	5.4
C. L. Dubreuil	{	Topsoil ...	...	1.9	1.2	10.2	15.9	0.37	0.31	5.6
		Subsoil	...	1.0	1.3				0.28	6.1

Ca, Mg & K expressed in milli equivalents per cent (exchangeable) N and O.M. expressed as percentage.

201. At the 30th of June, the number and acreage of tea plantations were as follows:

Total number of plantations	...	...	670
Aggregate area	...	...	Arpents 6,737.1
Area of mature Plantations (approx.)	...	...	3,002.7 (over 10 years old)
Area in partial bearing (approx.)	...	...	2,171.2 (3-9 years old)
Area not in bearing (approx.)	...	...	1,563.2 (under 3 years old)

<i>Extent (Arpents)</i>	<i>Aggregate area (arpents)</i>	<i>% of total area</i>	<i>No. of Plantations</i>	<i>Average Size (arpents)</i>
0 to less than 5 ...	1,303.6	19.3	610	2.1
5 to less than 25 ...	287.3	4.2	29	9.9
25 to less than 100 ...	859.1	12.8	15	57.3
100 and above ...	4,287.1	63.7	16	268.0
TOTAL ...	6,737.1	100.0	670	10.0

The largest plantation under single management was just over 900 arpents. There were 79 plantations of under 1 arpent.

PRODUCTION

202. Mauritius produced 4,353,039 lbs of black tea. The output of factories over the past five years was as follows:

<i>Factory</i>	<i>1962 lbs</i>	<i>1963 lbs</i>	<i>1964 lbs</i>	<i>1965 lbs</i>	<i>1966 lbs</i>
Bois Cheri	861,731	1,086,548	937,143	1,279,416	1,317,467
La Flora	774,650	806,447	839,524	865,739	895,093
Usine Corson	426,803	534,996	514,681	578,367	525,222
Pont Colville	237,793	291,190	241,495	210,372	192,122
Nouvelle France	148,620	105,713	226,921	315,862	365,461
Chartreuse	266,892	431,997	310,769	579,592	999,774
Mare Anguilles	83,138	—	—	—	57,900
TOTAL ...	2,799,627	3,256,891	3,070,533	3,829,348	4,353,039

203. The total export to all destinations was 2,855,038 lbs at a value of Rs 6,509,060 which compared with previous years as under:

<i>Destinations</i>	<i>1962 lbs</i>	<i>1963 lbs</i>	<i>1964 lbs</i>	<i>1965 lbs</i>	<i>1966 lbs</i>
United Kingdom	1,582,881	2,150,257	1,697,691	2,346,135	2,631,950
South Africa	977	6,482	6,158	18,948	121,360
New Zealand and Australia	—	—	—	—	7,783
Eire	—	—	—	27,670	31,601
Madagasikara } Reunion }	—	1,841	3,688	5,408	16,368 8,208
Western Europe	5,358	—	—	—	—
Unites States of America	—	16,902	—	—	—
Seychelles	—	11	—	—	—
Comoro Islands	—	—	93	—	1,003
Kenya	—	—	17,548	23,444	27,355
Malaysia	—	—	—	756	—
West Germany	—	—	—	9,975	5,311
Canada	—	—	—	2,269	2,851
British Indian Ocean Territories	—	—	—	—	1,149
Juan de Nova	—	—	—	—	99
TOTAL ...	1,589,216	2,175,493	1,725,178	2,434,605	2,855,038

204. Imports of Tea were as follows:

<i>Origin</i>	<i>1962 lbs</i>	<i>1963 lbs</i>	<i>1964 lbs</i>	<i>1965 lbs</i>	<i>1966 lbs</i>
China	10,190	8,668	11,130	13,348	10,406
Hong Kong	3,320	2,412	1,978	421	—
Ceylon	5,095	1,466	494	942	898
India	—	705	9	238	66
Formosa	—	736	—	—	—
United Kingdom	—	—	1,129	511	452
Kenya	—	—	8,129	—	—
Japan	—	—	—	970	1,323
Other Countries	1,065	—	—	—	—
TOTAL ...	19,670	13,988	22,869	16,430	13,145

X. Tobacco Industry

205. Production of cured tobacco was limited to the estimated requirements of local cigarette manufacturers, British American Tobacco Co. (Mauritius) Ltd. and Amalgamated Tobacco Corporation (Mauritius) Ltd. The industry is controlled by a Board which publishes annually a full report on the industry.

CROP CONDITIONS

206. Weather conditions were unfavourable throughout the year. Drought conditions prevailed intermittently during the first half of the year and was particularly severe from September to mid-December. The second season Virginian and Amarello plantations were severely affected; the Virginian plantations recovered to some extent after the heavy rains which commenced in mid-December. The yield and quality of Virginian flue-cured were below normal. The second season Amarello plantations were affected greatly by leaf miners and by root diseases, total loss being recorded in many cases.

207. The leaf spot diseases Frogeye and *Alternaria* were severe in some plantations. Powdery mildew was observed in some second season Virginia plantations at l'Etoile and Mare d'Australia, Flacq. Mosaic was severe in some Virginian plantations at Mare d'Australia. Following the heavy rains which started in mid-December, root diseases were particularly severe in the second season Amarello plantations. Root knot nematode was observed in plantations made in coral sand soil.

208. Leaf miners proved exceedingly troublesome in the second season Amarello crop, particularly during the period after transplanting, when growth was very much slowed down by hot dry weather. Caterpillars and aphids were not more abundant than in previous years.

PERMITS

209. The number of permits issued for the production of tobacco compared with the previous year was as follows:

		1965 (arpents)	1966 (arpents)
Flue-cured Virginia	...	813	1,004
Air-cured Amarello	...	99	72
Air-cured Amarello*	...	—	197*
Burley		17	—
TOTAL		929	1,273

Permits for a larger acreage were issued. The increase in acreage for Virginia flue-cured was due to increasing demand for Virginia flue-cured cigarettes to the detriment of cigarettes containing mainly Amarello air-cured, before the changes in Excise duties on 20th of July. The excise duty on flue-cured Virginia leaf tobacco was increased by Rs 6 per kilogramme, from Rs 20 to Rs 26, and the excise duty on air-cured Amarello leaf tobacco was reduced by Rs 2 per kilogramme from Rs 20 to Rs 18, as from the above mentioned date. As a result, consumption of the cheaper brands of cigarettes, containing

(* Special allocation after the changes in Excise duties on the 20th of July; these changes having caused a considerable upset in marketing conditions.)

mainly Amarello air-cured leaf tobacco, increased to a considerable extent to the detriment of Virginia flue-cured cigarettes. In consequence of this change in consumption trends, there was an accumulation of stocks of Virginia flue-cured tobacco, and a decrease of stocks of Amarello air-cured tobacco. In order to enable the cigarette manufacturers to meet the increased demand for cigarettes containing mainly Amarello air-cured tobacco, late in the year special permits had to be issued for the immediate production of this type of tobacco, at a time of year when climatic conditions are usually unfavourable for planting. In view of the severe drought which prevailed from September to mid-December, and to severe attacks of leaf miner during the hot dry season, it is not expected that appreciable quantities of Amarello air-cured tobacco will be produced. In any event, the tobacco will not be delivered at the Warehouse before February—March 1967.

PRODUCTION

210. The production of tobacco compared with 1965 was as follows:

		1965		1966	
		<i>Arpents</i>	<i>Kgs</i>	<i>Arpents</i>	<i>Kgs</i>
Flue-cured Virginia	...	813	354,737	1,004	414,663
Air-cured Amarello	...	99	122,009	72	77,121
Burley		17	7,111	—	—
TOTAL	...	929	483,857	1,076	491,784

YIELDS AND RETURNS

211. The yield of leaf and the financial return to growers of flue-cured Virginia and air-cured Amarello were lower than in 1965. Burley tobacco was not produced:

					<i>Average yield per arpent</i>	
					1965	1966
					<i>Kgs</i>	<i>Kgs</i>
Flue-cured Virginia	...	...	...	...	436	413
Air-cured Amarello	...	...	...	...	1,232	1,071
Burley	...	...	...	...	418	—
					<i>Average return per arpent</i>	
					1965	1966
					<i>Rs</i>	<i>Rs</i>
Flue-cured Virginia	...	...	...	...	3,208	2,744
Air-cured Amarello	...	...	...	...	2,897	2,754
Burley	...	...	...	...	1,011	—
					<i>Average value per kg</i>	
					1965	1966
					<i>Rs</i>	<i>Rs</i>
Flue-cured Virginia	...	...	...	...	7.35	6.64
Air-cured Amarello	...	...	...	...	2.35	2.57
Burley	...	...	...	...	2.42	—

QUALITY

212. Due mainly to the severe drought which prevailed during the period September to mid-December, the quality of the flue-cured Virginia tobacco produced was lower than in 1965. On the other hand, the quality of the air-cured Amarello tobacco was better than in 1965, due to dry conditions at curing time:

Year	Percentage of Bright and Medium grades				
	1962	1963	1964	1965	1956
Flue-cured ...	90	91	91	89	81
Air-cured ...	24	32	34	12	19

LOCAL MANUFACTURERS

213. The manufacturers' purchases and usings of domestic and imported leaf were as follows:

1966-Purchases	Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
					Imported	Domestic
	Kgs	Kgs	Kgs		Rs	Rs
B.A.T. Co. Mts. LTD...	407,379	57,810	554,101	10.4	11.22	7.05
A.T.C. Mts. LTD. ...	88,912					7.39
TOTAL ...	496,291	57,810	554,101	10.4	11.22	7.11

1966-Usings	Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
					Imported	Domestic
	Kgs	Kgs	Kgs		Rs	Rs
B.A.T. Co. Mts. LTD...	404,762	70,965	475,727	14.9	—	—
A.T.C. Mts. LTD. ...	93,568	2,467	96,035	2.5	—	—
TOTAL ...	498,330	73,432	571,762	12.8	—	—

1965	Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
					Imported	Domestic
	(Kgs)	(Kgs)	(Kgs)		(Rs)	(Rs)
Purchases ...	461,372	108,895	570,267	19.0	10.11	6.86
Usings ...	485,317	101,061	586,378	17.2	—	—

214. The percentage of imported leaf used in manufacture decreased by 4.4 compared with 1965, as illustrated in the following table:

	Year							
	1960	1961	1962	1963	1964	1965	1966	
% Imported	23.9	24.9	24.3	20.8	22.8	17.2	12.8	

These figures indicate that usings of domestic leaf have increased. However, it must be emphasised that this increase in usings of domestic leaf was mainly before the changes in excise duties on the 20th of July. Since then, there has been a decrease in consumption of both domestic and imported leaf.

215. The average C.I.F. value of imported Virginian leaf was Rs 11.22 per kilogramme compared with Rs 8.26 per kilogramme for domestic Virginian leaf. The average value of air-cured Amarello purchased by the manufacturers was Rs 8.10 per kilogramme.

216. Domestic Virginian blended with imported leaf is used in the manufacture of 'State Express Filter King 555', 'Matinée', 'Vogue' and 'Embassy' brands of cigarettes which used to sell in competition with imported Virginian cigarettes. However, since the increase in import duties on the 20th of July, imports of Virginia cigarettes have fallen to a low level and competition with imported cigarettes is now negligible.

IMPORTS

217. Imports of leaf and cigarettes for the last two years are tabulated below:

	1965		1966	
	Kgs.	Value Rupees	Kgs.	Value Rupees
Cigarettes ...	17,379	362,168	11,163	233,166
Leaf from :				
Rhodesia ...	35,929	271,860	—	—
U.S.A. ...	72,956	829,598	57,552	647,676
U.K. and China ...	—	—	258	934
Total leaf ...	108,895	1,101,458	57,810	648,610
GRAND TOTAL ...	126,274	1,463,626	68,973	881,776

218. Usings of domestic leaf have increased by 13,012 kgs and usings of imported leaf have decreased by 27,629 kgs compared with 1965, a net decrease of 14,617 kgs. The percentage increase in usings of domestic leaf was 2.7 per cent as against a decrease in usings of imported leaf of 27.3 per cent.

219. The increase in usings of domestic leaf amounted to 19,799 kgs for the first six months of the year, while the decrease in usings of domestic leaf after the changes of excise duties on 20th of July, for the period 1st July to 31st December was 6,787 kgs.

220. The following table shows the usings of domestic and imported leaf for the first and second halves of the year compared with the same periods for 1965:

Usings	Domestic	Imported	Total
	Kgs	Kgs	Kgs
January—June 1966 ...	240,072	45,889	285,961
January—June 1965 ...	220,273	56,725	276,998
INCREASE ...	19,799	—	8,963
DECREASE ...	—	10,836	—
July—December 1966 ...	258,257	27,543	285,800*
July—December 1965 ...	265,044	44,336	309,380
DECREASE ...	6,787	16,793	23,580

WAREHOUSE

221. The buildings were well maintained.

*Duty changes on 20th of July, 1966

XI. Fibre Industry

222. The total production of Mauritius Hemp continued to be sold by the Mauritius Hemp Producers' Syndicate to the Goernment Sack Factory for weaving into sacks to be used for the bagging of sugar and of rice being purchased from Burma. Comparative statistics in connection with production were as follows:

	1965	1966
Number of factories operating	10	9
Fibre produced (metric tons)	1,390	1,552
Value (Rupees)	1,685,300	1,881,210
Area under aloe (arpents) :		
Wild	2,755	2,755
Plantation	257	257

SACK FACTORY

223. This organisation is controlled by a Board which publishes annually a full report on its activities.

224. The factory purchased fibre produced locally and imported jute cuttings to the extent:

	1965 kgs	1966 kgs
Aloe :	1,390,512	1,552,154
Jute :	399,646	201,571
The carry over from the previous year was	Aloe : 67,989	159,543
	Jute : 98,050	83,910
The factory consumed	Aloe : 1,298,774	1,467,152
	Jute : 413,964	209,701
Excess in stock	Aloe : 539.5	—
	Jute : 178	55
Shortage in stock	Aloe : 160	7.5
	Jute : —	—
Aloe fibre sold	187	190.5
The carry for the year was	Aloe : 159,543	244,345
	Jute : 83,910	75,845

225. The prices paid for fibre were as follows:

	<i>Price per metric ton</i>	
	1965 Rs	1966 Rs
<i>Aloe fibre :—</i>		
Very Good	1,300	1,300
Good	1,250	1,250
Fair	1,225	1,225
Tow	1,000	1,000
Sisal	1,250	1,250
Cuttings	900	900
Ropes	900	900
<i>Jute :—</i>		
Cuttings	983	840

226. The average price payable for aloe fibre was Rs 1,212 per metric ton and this will be applicable until the 31st December, 1969, in accordance with the Tripartite Agreement which has been extended for a further year by the Sugar Millers, The Mauritius Hemp Producers' Syndicate and the Government Sack Factory.

227. The Factory's output compared with that for 1965 was as follows :

		1965	1966
		Units	Units
Sacks (6 × 8) aloe ...		774,622	80,008
Sacks (5 × 7) aloe/jute ...		731,639	1,569,844
Other sacks ...		46,521	8,502
		<i>Yards</i>	<i>Yards</i>
Filter press cloth ...		12,108	14,146
Other fabrics ...		4,110	2,008
		<i>Kgs</i>	<i>Kgs</i>
Yarn ...		17,140	19,694
Rope ...		7,457	6,831

228. The Government Sack Factory continued to operate at a loss which amounted to Rs 186,466 compared with Rs 283,217 in 1965. The net loss arises from the sale of 410,000 (5×7) sacks to the sugar industry and 1,095,500 to Burma at an average price of Rs 1.574 compared with a cost of Rs 1.7791. The loss for the year would have been considerably larger but for the reconditioning of second hand sacks which produced a gross profit of Rs 232,415.

229. Stocks of sacks at the 31st December were valued as in the past, at cost or estimated realisable value, whichever is the lower. This resulted in a stock write-off of Rs 158,000.

230. The factory will continue to face serious difficulties and incur losses because remunerative markets cannot be found for its products on account of the high price of raw materials and consumers resistance to paying a higher price for a bag which is much more durable than the customary jute bag.

XII. Livestock

MILCH CATTLE

231. At the end of the year, the two livestock breeding stations at Curepipe and Palmar carried a total of 318 head of the Creole milch breed—232 females and 86 males. The average production of lactating cows was 6.05 kgs of milk per head per diem. There were 60 calvings—30 males and 30 females. 19 heifers calved at an average age of 37 months 3 days. The average weight of bull calves at birth was 32.4 kgs and that of heifer calves 31.1 kgs. Over a lactation period of 274.5 days first calvers yielded 5.8 kgs of milk per head per diem; the best performer yielded 13.0 kgs. Over 305 days second calvers yielded an average of 7.4 kgs of milk per head per diem; the best performer yielded 17.7 kgs. Over 305 days, third calvers yielded 7.1 kgs of milk per head per diem; the best performer yielded 17.5 kgs. Over 305 days, fifteen cows, with more than 3 calvings, gave 9.4 kgs of milk per head per diem; the best performer yielded 25.7 kgs.

HERD CATTLE

232. The livestock breeding station at Palmar carried 143 and 78 head of cattle of all ages of the Ongole and Boran breeds respectively. There were 44 calvings in the Ongole of which 25 were female. The average weight at

birth for bull calves was 24.9 kgs and 25.5 kgs for heifer calves. Eight young bulls were sold for slaughter. The Borans continued to thrive, 26 calves were born, of which 11 were males and 14 females; one was still-born. The average weight at birth was 26.3 kgs for males and 27.4 for females. Two Ongole bulls and 8 Boran bulls were transferred to Rodrigues. The crossing of the Brahmin bull with selected Ongole cows was continued with satisfactory results.

PIGS

233. The piggery carried an average of 50 head of stock of all ages of the Large White breed. There were 10 farrowings and, on average, 10.0 piglets were born to each sow. The average weight at birth was 2.17 lbs. The average number weaned per litter was 7.83 and the average weight at weaning was 31.4 kgs per piglet. 16 young boars and 22 young gilts were sold to breeders and one sow was slaughtered. Two boars were transferred to Rodrigues. A small herd of Berkshires, comprising 5 females and 1 male were introduced with a view to assessing this breed under conditions in the Curepipe area. The stock was obtained from an introduction of Berkshires from the United Kingdom, passing through Mauritius, for Rodrigues to improve the Berkshire stock on that island where this breed has done so well.

GOATS

234. The herd of goats at Palmar livestock breeding station comprised 78 Anglo-Nubians, 22 Jumna Pari, 7 British Alpine and 14 Rodriguan goats. Sixteen Anglo-Nubian goats kidded, the average weight of the kids at birth being 3.36 kgs. Twelve Anglo-Nubian, 5 Jumna Pari and 4 Rodriguan goats died. Three young Anglo-Nubian bucks were sold to breeders. Five bucks and four does of the Anglo-Nubian breed were received from the United Kingdom. The Jumna Pari goats, received as a gift from the Government of India, continued to thrive. There were 4 kiddings, producing 4 males and 1 female, the average weight of the kids at birth was 5.125 kgs for males and 4.0 kgs for females. The total milk production was 734.2 kgs for 973 does days, the average milk production being rather low at 0.754 kg per head per day, with a maximum of 2.0 kgs per head per day. Among the British Alpine, only one female kid was born, which weighed 4 kgs at birth. With a view to improving the local breed, local goats were crossed with Anglo-Nubians; 4 females and 1 male were born of 3 kiddings; the average weight at birth was 2.5 kgs. Likewise the local goats were crossed with Jumna Pari; there were 6 kiddings producing 7 males and 5 females, the average weight at birth being 3.3 kgs.

SHEEP

235. Breeding of sheep was discontinued, 6 of the animals having died. The results obtained do not warrant much time or effort being spent on sheep breeding.

RABBITS

236. Seventy-two rabbits of Flemish Giant, Chinchilla, California White and New Zealand White breeds were carried at the rabbitery at Reduit and 8 at the livestock breeding station, Curepipe. Twelve litters were born, giving

as total 54 kids, of which 11 died, representing 75.9 per cent mortality. One Flemish Giant, 10 Chinchillas and 4 California White were sold to breeders and a pair of Chinchillas was transferred to the extension service. The results to date do not show much promise.

POULTRY BREEDING CENTRE

237. The breeding programme for White Leghorn was discontinued due to reputed loss of popularity with producers, Parent stock of "404" and "707". Thornber hybrid strains were maintained for the production of layers. In addition, the centre maintained under trial the "hybrid 4" pullets, as well as the parent stock of this strain, from F. & G. Sykes Ltd., to study their egg potential and livability under Mauritian conditions. Cobb's broiler parent stock was maintained also as well as parent stock of Ledbreast/Pilch from F & G. Sykes Ltd. for the production of broiler chicks.

238. 91,161 chicks were hatched compared with 62,550 in 1965, an increased output of 45 per cent of the total production; 10,345 day-old pullets and 10,159 month-old pullets for the production of eggs were sold; the drop in the overall sale of day-old pullets of 2,115 chicks from the previous year was due to the fact that part of the "404" parent stock breeders were killed by predators at the peak of their production. Similar losses were suffered also by the Cobb's male parent stock. The birds that survived did not do well. 49,327 broiler chicks were supplied to the two established commercial broiler producers and 19,295 day-old and month-old male chicks, mainly from laying stock were sold for back yard production of poultry meat. 6,002.6 kgs of dressed chicken from trials and culls were sold for consumption. The centre also provided 60 chicks to the Animal Health Laboratory for the testing of vaccines and 88 pullets to Rodrigues.

HYBRID "404"

239. 16,644 hybrid "404" chicks were produced, of which 4,953 day-old pullets, 3,046 month-old pullets and 7,959 day-old cockerels were sold for egg and poultry meat production respectively.

HYBRID "707"

240. 23,918 hybrid "707" chicks were produced of which 10,673 day-old as hatched, 5,603 month-old pullets and 5,507 month-old cockerels were sold.

BROILER CHICKS

241. The production of broiler chicks was raised to 50,599 chicks compared with 9,350 in 1965, when the production of broiler chicks for the two broiler producers was initiated. Of these, 49,327 day-old chicks were supplied to the two broiler producers and the balance to a few enthusiasts.

242. The demand for Broad Breasted Bronze turkeys was even less than in the previous year. For want of space, the unit was moved to the coast to Palmar. The stock lost condition; males were particularly affected and were found to be listless while the fertility of eggs dropped markedly. The unit was scrapped.

EGG PRODUCTION

243. 313,330 eggs were produced. The monthly egg production of the various breeds was as follows:

Month	Breed								Total
	*White Leghorn	Parent Stock "404"	Hybrid Parent Stock "707"	Parent Stock Sykes	Parent Stock Cobbs	†Hybrid 4	†Parent Stock 4	†Leadbrest/ Pitch	
January ...	5,217	6,346	10,901	5,980	4,915	—	—	—	33,359
February ...	6,190	7,427	10,286	4,824	4,113	—	—	—	32,840
March ...	3,632	8,322	10,856	4,588	3,964	—	—	—	31,362
April ...	171	7,266	8,894	5,365	4,415	—	—	—	26,111
May ...	32	7,066	6,737	4,911	5,053	—	—	—	23,799
June ...	—	3,482	4,984	3,245	5,352	—	—	—	17,063
July ...	—	3,752	4,845	3,350	5,803	92	—	—	17,842
August ...	—	3,848	5,093	4,062	6,753	2,152	457	154	22,519
September ...	—	2,936	4,713	3,332	5,877	4,466	2,391	1,363	25,078
October ...	—	2,145	3,854	2,558	4,055	4,688	3,544	5,132	25,976
November ...	—	—	4,112	2,163	6,671	4,666	3,027	7,337	27,976
December ...	—	420	3,979	1,174	10,051	4,448	2,685	6,578	29,405
TOTAL ...	15,242	53,080	79,254	45,552	67,022	20,512	12,104	20,564	313,330

244. Of the 313,330 eggs produced and 4,388 eggs carried forward from 1965, 130,638 eggs were sold for the table, 153,608 were incubated for the supply of chicks to the public and 3,679 were issued to the Animal Health Laboratory for vaccine production, including 12 issued to the Medical laboratory at Candos and 100 eggs each to the extension services. At the 31st December, the stock of eggs was 10,202.

REPRODUCTIVE PERFORMANCE

245. 91,161 chicks were hatched. The average fertility and hatchability were 78.23 per cent and 60.5 per cent respectively of all eggs set.

246. The monthly reproductive performance of all breeders was as follows:

Month	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles	% hatched of all eggs set
January ...	1,570	1,110	734	70.7	66.1	46.7
February ...	3,516	2,747	1,558	78.1	56.7	44.3
March ...	11,834	8,473	5,734	71.5	67.6	48.4
April ...	13,260	10,017	7,346	75.5	73.3	55.4
May ...	22,196	17,661	13,655	79.5	77.3	61.5
June ...	13,865	10,982	8,261	79.2	75.2	59.5
July ...	10,553	8,518	7,179	80.7	84.2	68.0
August ...	18,421	15,129	11,970	82.1	79.1	64.9
September ...	15,074	11,968	9,867	79.3	82.4	65.4
October ...	16,592	12,884	10,144	77.6	78.7	61.1
November ...	11,662	9,224	7,537	79.0	81.7	64.6
December† ...	16,019	9,102	7,176	76.3	78.8	60.1
Total ...	154,562	117,815	91,161	78.2	77.3	60.5

*Breed was scrapped in May.

†Birds came into lay in the months of July and August.

‡Percentage worked for December was calculated on 11,928 eggs set, as the difference of 4,091 was set on 19th of December and the chicks hatched on 9th of January, 1967.

247. The actual number of eggs set for the year is 154,562 eggs less 954 eggs, which were set in December, 1965, but the chicks hatched out in 1966, namely 153,608.

248. The monthly performance of all Parent Stock, breed-wise, was as follows:

Month	Sykes Broiler					Cobbs Broiler				
	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles
January ...	1,570	1,110	734	70.7	66.1	—	—	—	—	—
February ...	3,006	2,386	1,333	79.3	55.8	510	361	225	70.7	62.4
March ...	3,907	2,663	1,707	68.1	64.1	4,169	3,008	1,991	72.1	66.1
April ...	4,310	3,034	2,020	70.3	66.5	3,215	2,583	1,935	80.3	74.9
May ...	4,531	3,585	2,161	79.1	60.4	4,962	4,045	3,039	81.5	75.1
June ...	4,850	3,742	2,662	77.1	71.1	3,404	2,817	1,787	82.6	63.4
July ...	1,899	1,655	1,333	87.1	80.2	3,356	2,389	1,871	71.1	78.3
August ...	4,326	3,738	2,373	86.4	63.4	4,780	3,557	2,841	74.4	79.8
September ...	2,473	2,101	1,607	84.9	76.4	6,911	5,140	3,989	74.3	77.6
October ...	3,972	3,218	2,393	81.0	74.3	5,436	3,615	2,724	66.5	75.3
November ...	1,902	1,474	1,134	77.4	76.9	2,377	1,596	1,124	67.1	70.4
December ...	1,516	1,072	864	70.7	80.5	4,193	2,537	1,777	60.5	70.0
TOTAL ...	38,262	29,768	20,321	77.8	68.2	43,313	31,648	23,303	73.0	73.6

Month	"404" Parent Stock					"707" Parent Stock				
	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles
March ...	2,580	1,988	1,436	76.7	72.2	1,178	814	600	74.1	68.6
April ...	3,499	2,647	1,950	75.6	73.6	2,236	1,753	1,441	78.3	82.2
May ...	6,277	4,533	3,456	72.2	76.2	6,426	5,498	4,999	85.5	90.9
June ...	4,668	3,604	3,064	77.2	85.0	943	819	748	86.8	91.3
July ...	1,670	1,270	1,024	76.0	80.6	3,628	3,204	2,951	88.3	92.1
August ...	4,176	3,197	2,507	76.5	78.4	5,139	4,637	4,249	90.2	91.6
September ...	1,909	1,481	1,160	77.7	78.3	3,781	3,246	3,111	85.8	95.8
October ...	2,933	2,193	1,604	74.7	73.1	4,251	3,858	3,423	90.7	88.7
November ...	864	609	443	70.4	72.7	2,999	2,640	2,396	88.0	90.7
TOTAL ...	28,576	21,522	16,644	75.2	77.3	30,581	26,529	23,918	86.7	90.0

Ledbreast/Pulch

Month	Number set	Number fertile	Number hatched	% fertility	% hatched of fertiles
November ...	3,520	2,905	2,440	82.5	84.0
December ...	6,219	5,493	4,535	88.3	82.5
TOTAL ...	9,739	8,398	6,975	86.2	83.0

249. Although little improvement was recorded in the overall fertility and hatchability of eggs produced, a review of the data compiled in respect of individual breeds/strains above, showed that the "707" parent stock gave the best results with hatchability of 90 per cent and fertility of 86.7 per cent. Unfortunately, Thornber Bros. have experienced less demand for hybrid "707" and have therefore stated that they have decided to scrap this strain.

250. The gift from F. & G. Sykes Ltd. of 207 day-old pullets of "hybrid 4", negotiated by the Senior Veterinary Officer, arrived early in the year. In view of the decision of Thornber Bros. in respect of their "707" hybrid, 200 day-old parent stock pullets plus cockerels of "hybrid 4" were imported. This hybrid shows promise.

IMPORT OF NEW STOCK

251. To meet the demand for "404" hybrid chicks, 955 day-old parent stock pullets and 134 day-old parent stock cockerels were imported.

252. F. & G. Sykes supplied us with 207 day-old parent stock "hybrid 4" pullets and 14 day-old parent stock cockerels. For the production of broiler chicks, 1,015 day-old Ledbreast/Pilch parent stock pullets and 149 day-old parent stock cockerels were imported as well as 722 day-old Cobb's parent stock pullets and 144 day-old parent stock cockerels.

ARTIFICIAL INSEMINATION AND VETERINARY AID SERVICES

253. The policy of importing high grade Friesian semen from the Department of Veterinary Services, Kenya, to increase milk production was continued pending the acquisition of bulls. This service is based upon voluntary requests from peasant farmers and the response so far has been poor. In addition, the upgrading of Creole cows by using selected Creole bulls was continued. A total of 13,693 calls for artificial insemination, were received and 12,256 cows were inseminated during the year, the balance of 1,437 calls being in respect of animals found to be either too young or past their oestrus period. On the basis of first insemination, the overall average conception rate was 52 per cent which was lower than the conception rate of 56.7 per cent recorded last year. The relatively low conception rate is due to the use of room temperature semen. The implementation of the C.M.E.—room temperature semen—since January, 1966, has not proved yet to be a success as can be seen from the following table:

ARTIFICIAL INSEMINATION FOR 1966

Locality	Milk (old method)		C.M.E. (Room Temperature Semen)		Imported Semen (Room Temperature)	
Flacq	556	203	81	45	6	2
Bel Air	299	117	41	29	4	1
Quartier Militaire	180	77	559	248	9	6
Helvetia	174	72	534	253	18	8
Stanley	578	170	79	50	3	2
St. Paul	667	227	174	91	10	3
Medine	211	62	34	22	21	13
Union Park	231	96	38	26	7	4
Rivière des Anguilles	216	98	32	17	—	—
La Rosa	298	106	47	31	20	14
Plaisance	170	58	30	14	6	3
Abercrombie	162	67	431	231	13	10
Pamplemousses	108	60	270	157	11	8
Mapou	294	108	44	19	9	5
Rempart	246	102	34	24	9	1
Goodlands	224	98	49	31	2	1
TOTAL	4,614	1,721	2,477	1,288	148	81
%	63%		48%		45%	

254. From January to March, room temperature semen was used all over the Island and the results were far from encouraging; the re-inseminations were on an average of 50 per cent. The preparation of the C.M.E. was discontinued on the 10th of May due to shortage of some of the items required for its preparation.

255. In June, instead of using the C.M.E. all over the Island, only three districts were selected for its use: Port Louis and Pamplémousses—two warm districts and Moka, a temperate one.

256. Many trials were made with different types and grades of half ripe coconuts with a view to finding the most suitable for the preparation of the C.M.E. In our experience half-ripe Ceylon variety was found to be the best type. This probably accounts for initial disappointments with C.M.E.

257. In addition, 6,017 cases requiring veterinary aid were attended by the Field Staff. Only 67 cases of infertility due to ovarian cysts were treated and these were successfully enucleated and the animals responded successfully to re-insemination. The nature of the cases attended were mainly calcium and phosphorous deficiencies, mastitis, dystokia and digestive troubles.

XIII. Animal Health

258. The health of the stock at the various Government livestock breeding stations continued to be satisfactory thus maintaining optimum conditions for the successful implementation of the production programme.

259. The animal health picture of the Island continued to be unique and no new exotic animal diseases were recorded save that Streptothricosis, already known to exist, re-appeared in one small farm and despite treatment on traditional basis no improvement was recorded. Unfortunately no vaccine nor any specific treatment has yet been found against this disease. No deaths were recorded due to Piroplasmosis.

CATTLE

260. Summer Mastitis amongst milch cattle at the Government livestock breeding stations continued to remain under control and no fresh case was recorded during the year. Save for minor udder troubles, no major mastitis cases were recorded in the field.

PIGS AND GOATS

261. The pig unit at Curepipe livestock breeding station continued to thrive during the year and no mortality arising out of sickness was recorded. The Anglo-Nubian and Jumna Pari goats continued to thrive together with a small unit of Rodriguan goats imported for cross breeding with the above two breeds. Casualties amongst kids were higher than expected and all due to Coccidiosis.

POULTRY

262. The poultry breeding centre carried an average of 13,340 birds of all ages on a monthly basis and throughout the year production was stepped up by 45.7 per cent over the previous year viz: from 62,550 in 1965 to

91,161 chicks in the year under report. The mortality in the stock during the year was 1.82 per cent per month. Bearing in mind that the strength of stock carried was the same as in the previous year the improved production and health were due to not only improved management but also to a higher plane of nutrition. British Oil Cake and Mills concentrates feeds were used in preparing the feed for breeders at the Livestock Feed Factory.

263. The overall analysis of mortality was as follows:

					1965 per cent	1966 per cent
C.R.D.	...	...	...	...	1.07	1.17
Leucosis	...	...	...	...	8.20	12.70
Encephalomyelitis	...	...	...	...	4.06	1.69
Lung congestion (Respiratory)	...	...	...	...	25.60	25.30
Avitaminosis, rickets etc.	...	...	...	...	20.78	8.38
Coccidiosis	...	...	...	...	4.08	1.93
Unabsorbed yolk, parasitism etc.	...	...	...	...	36.21	48.83

264. The high mortality as a result of unabsorbed yolk, trauma, parasitism is due partly to congestion and it is hoped that with additional buildings to be constructed, this incidence can be easily lowered if not made insignificant.

RABBITS

265. No fresh outbreak of snuffles was recorded. Mortality among young rabbits was again high due to Coccidiosis.

LABORATORY SERVICES

266. A total of 4,519 specimens were submitted to the Animal Health laboratory and subjected to pathological, parasitological and haematological examinations. These samples consisted of animal carcasses, blood, milk, faeces, pus samples and skin scrapings and were submitted by Government agencies and private owners. Details of these examinations are given in Appendix F.

267. The work of the animal health laboratory was concerned with (a) general routine investigations; (b) animal disease surveys; (c) vaccine production and (d) research.

(a) General routine investigations involved pathological examinations of animal carcasses (mainly poultry), bacteriological examinations of milk samples, animal tissues, microscopic examinations of faeces samples, pus, skin scrapings and blood films and serological examinations of blood samples.

(b) Animal disease surveys, including a Tuberculin Testing Programme, were initiated in June. 725 samples including 537 blood films, 11 skin scrapings, 184 milk samples, were examined. The surveys were discontinued at the end of October.

(c) Vaccine production was restricted to (a) Newcastle Disease Inactivated Vaccine (b) Fowl Pox Vaccine. The following represent the number of doses of each of the vaccines produced.

		doses
Inactivated Newcastle Disease Vaccine	...	200,000
Fowl Pox Vaccine	...	168,000

(d) Research into the possible role of fungi and yeasts in setting up diseases of animals was started in May, 1966, following the isolation of yeasts *Candida* spp in pure culture from the 4th stomach (abomasum) of an aborted foetus. The creole cow concerned aborted at 4 months, following artificial insemination, and examination for brucella trichomonas proved negative. The yeast was tentatively diagnosed as *Candida tropicalis*. Only one case of abortion in cattle due to this organism was previously reported in veterinary literature. Through the kind cooperation of Mr. Robert Antoine of the Mauritius Sugar Industry Research Institute, the culture was sent to the laboratory at Delft in Holland where typed cultures of yeasts are held; *Candida tropicalis* was confirmed. Another case of abortion in a Creole cow was investigated in October, 1966. *Candida tropicalis* was isolated in pure culture from the retained placenta. This cow aborted at about 4 months following artificial insemination. Both these cases are interesting and tend to support a belief that an ascending infection with *Candida* took place following artificial insemination.

268. As coconut milk is used as a diluent in the artificial insemination technique practised in Mauritius, an attempt was made to determine if the yeast *Candida* could grow in this medium. After two days incubation a heavy culture of the organism was obtained and it was noted that the pH. of the medium dropped from 5 to 3. Attempts are therefore being made to determine if yeasts or fungi contribute in any way to the poor conception rates stated to follow artificial insemination in Mauritius.

269. In October, 1966, a pure culture of *Candida* spp was recovered from the parotid gland of a pig imported from Rodrigues nine days earlier and sent to the Curepipe Slaughter House. On examination of the carcase, a lesion in the right parotid gland was noted and, as tuberculosis was suspected, the gland was sent to the laboratory for bacteriological examination. Examination proved negative for *M. tuberculosis* and for actinomycosis but a pure culture of the yeast *Candida* was obtained, having most of the characteristics of *Candida tropicalis*. Again the culture was sent to Delft for examination. On completion of their tests the authorities in Delft reported that the organism was *Candida paramphillosis*, a species reported only once previously in animals.

270. Four cases of streptothricosis, associated with the organism *Dermatophilus congolensis* was diagnosed in four bulls in the neighbourhood of Port Louis.

271. In addition to the above cases of diseases in animals due to yeasts, 14 cases of moniliiasis (sour crop) in poultry, usually due to *Candida albicans*, were encountered in routine work.

272. The high incidence of respiratory disease in poultry continued to cause some concern as losses, due to this condition, were often very high in some flocks. This disease is largely due to *Mycoplasma gallisepticum*, often associated with *E. Coli*. Avian Leucosis was still a problem.

VACCINATION CAMPAIGN

273. As in 1965, five trained and fully equipped vaccinators continued to be posted in the districts to provide vaccination facilities to large and small poultry keepers. This service increased by 35 per cent on the previous year's campaign and the total number of doses of Newcastle live and dead vaccine as well as Fowl Pox vaccine used was 100,338. This reflected the marked interest of poultry keepers in the vaccination campaign and helped to maintain control over these two diseases. The vaccinators continued to give to poultry farmers simple advice on management and hygiene. 108,270 doses of Newcastle vaccine (dead) and 84,070 doses of Fowl Pox vaccine were sold direct to poultry keepers wishing to do their own vaccination.

TUBERCULIN TESTING

274. Using the single intradermal comparative test, 2,284 Zebu herd cattle, 505 milch cattle and 14 buffaloes were tested. There were 10(71.3 per cent) positive reactors among the buffaloes, 59(2.5 per cent) positive reactors among the Zebu cattle; the Dairy (milch) cattle showed no reactors. All reactors were disposed of through slaughter.

ANIMAL QUARANTINE SERVICE

275. To prevent the introduction of infectious/contagious diseases into Mauritius, the provisions of the Animal Diseases Ordinance were rigidly applied to all imports of livestock and livestock products. The quarantine kennels, the cattery and the poultry quarantine unit at Reduit and the animal quarantine station at Roche Bois were maintained. To ensure against the introduction of any diseases through the importation of live goats from Madagasikara, the slaughter of these goats was restricted to the slaughter house at Roche Bois, which is under the control of a fully qualified Municipal Veterinary Surgeon. Likewise cattle from Madagasikara were slaughtered at slaughter houses of Roche Bois, Rose-Hill and Curepipe only.

LIVESTOCK

276. Under the provision of the Animal Diseases Ordinance, 67 ships and 8 aircraft carrying livestock were cleared and all livestock, whether for slaughter or breeding purposes, was subjected to quarantine at the quarantine stations. During the year, the following livestock was received at the quarantine stations compared with 1965:

Country of Origin	Bullocks		Sheep		Goats	
	1965	1966	1965	1966	1965	1966
Madagasikara ...	7,141	8,935	—	—	1,446	2,176
Rodrigues ...	632	402	1,399	1,539	2,808	3,097
Australia ...	—	—	3,345	2,799	105	528
TOTAL ...	7,773	9,337	4,744	4,338	4,359	5,801

277. In addition 4 Friesian bulls imported from Australia for breeding purposes in Rodrigues, were held in quarantine at Roche Bois quarantine station. Thirty-nine cage birds were imported from the United Kingdom and were quarantined prior to release. Five bucks and four does of the Anglo-Nubian breed of goats were introduced from the United Kingdom to supplement existing stock and to introduce new blood lines.

278. At Reduit, 3 dogs from the United Kingdom were held in quarantine for a period of 6 months from the date of arrival. Also, 3,212 day-old chicks, received from the United Kingdom, underwent quarantine.

LIVESTOCK PRODUCTS

279. During the year 2,905 import permits and 563 landing permits were issued. All frozen meat landed was subject to veterinary inspection prior to release for sale. The following table summarises the imports of livestock products including frozen meats, offals by-products of abattoirs and prepared livestock feeds compared with 1965:

	1965	1966
Frozen beef and beef products	1,610,402 $\frac{3}{4}$ lbs	1,249,261 $\frac{3}{4}$ lbs
Frozen mutton and offals	1,069,528 $\frac{3}{4}$ lbs	1,289,178 lbs
Frozen goat meat and offals	121,161 lbs	53,252 lbs
Frozen pork and pork products	303,004 lbs	234,916 7/16 lbs
Frozen poultry	575,599 lbs	492,554 $\frac{3}{4}$ lbs
Eggs	43,937 $\frac{1}{2}$ dozen	26,085 dozen
Frozen turkeys, ducks & geese	6,408 $\frac{3}{4}$ lbs	8,029 lbs
Frozen rabbits	912 lbs	60 lbs
Livestock feeds (Poultry, pigs, cattle and horse)	8,125,054 lbs	11,092,354 lbs
Meat and fish meal for livestock feeds	1,267,280 lbs	743,872 lbs
Bone meal for livestock feeds	232,064 lbs	89,600 lbs
Lucerne	56,000 lbs	—

SLAUGHTER DATA

280. During the year, 1,788 calves, 1,184 cows, inclusive of 99 slaughtered on humane grounds, and 1,808 bulls of the milch breed were slaughtered, producing 1,051,642 lbs of beef. In addition, 487 herd cattle and 414 bullocks, imported from Rodrigues, were slaughtered yielding 238,350 lbs of beef. 8,793 bullocks, imported from Madagasikara were slaughtered and produced 2,885,136 lbs of beef.

281. Local production of fresh beef, inclusive of animals from Rodrigues, was therefore 1,289,972 lbs which together with 2,885,136 lbs from imported Madagasikara animals, made a total of 4,175,108 lbs. The total fresh and frozen beef available was 5,422,369 $\frac{3}{4}$ lbs exclusive of illegal slaughter.

282. Likewise, 27,566 lbs mutton and 311,340 lbs goat meat were produced in Mauritius and another 226,516 lbs from 5,503 imported goats and sheep giving a total of 565,422 lbs. 893,336 lbs pork were produced locally including pigs imported from Rodrigues. In these figures offal and preparation are not included.

283. The slaughter house returns revealed the following average weight of imported and local cattle slaughtered during the year:

	lbs
Local herd cattle	285.1
Local milch cow	262.4
Local bulls of milch breed	219.3
Calves of local milch breed	192.7
Rodrigues cattle	240.3
Madagasikara cattle	328.1

284. Ten week-ends for the slaughter of unproductive females of the local milch breed were authorised. During the same period, 138 permits were issued for the slaughter of males of the milch breed for wedding and religious ceremonies. Nine butchers were licensed to sell beef in shops licensed by the Ministry of Health.

SLAUGHTER HOUSE CONTROL

285. Under the Food Control Order, 1,085 permits were issued for the slaughter of unproductive cows of the milch breed compared with 2,579 in 1965. In addition, 99 animals of the milch breed were allowed slaughter on humane grounds.

286. Twenty-six cases of illegal slaughter of females of milch breed were examined and certificates issued to the Police Department. One case of out-of-season killing of stags was examined and a certificate was issued. Four cases of alleged cruelty to animals were examined and treated and the required certificates were issued.

287. Fourteen total and 353 partial seizures on account of bovine tuberculosis were reported among the Madagasikara bullocks slaughtered giving 4.2 per cent of T.B. cases out of a total of 8,793 head slaughtered. In respect of the local stock of Zebu and milch animals, there were one total and eleven partial seizures on account of bovine tuberculosis, according to the slaughter house returns, giving 0.23 per cent of T.B. cases out of a total of 5,267 head slaughtered.

TRAINING OF STAFF

288. Lectures to junior staff, inaugurated in 1965, were continued throughout the year and the Animal Husbandry Officer delivered a set of twelve lectures on animal management. To augment this training ten film shows were organised with the assistance of the British Information Services.

ADVISORY SERVICE

289. Officers continued to visit large and small livestock breeders for on-the-spot advice and lectures were delivered to Young Farmers and Members of the Freedom from Hunger Campaign Clubs.

REVENUE

290. The various services rendered to the public produced revenue of Rs 373,664.97 compared with Rs 322,574.40 in 1965, the main sources of which were:

		1965		1966	
		Rs	c	Rs	c
Sale of livestock, other than poultry	...	59,786.18		76,207.35	
Sale of poultry, chicks, eggs, etc.	...	175,495.77		194,568.12	
Sale of vaccines and drugs	...	9,798.25		14,332.08	
Quarantine Fees	...	60,197.20		72,055.92	
Veterinary Fees	...	16,256.00		16,141.00	
Miscellaneous	...	1,041.00		360.50	
TOTAL	...	322,574.40		373,664.97	

XIV. Land Settlement

291. In 1966, the Land Settlement Committee held no meeting. However, the Special Committee set up by the Ministry of Agriculture and Natural Resources to advise on applications for land for agricultural purposes held two meetings and dealt with the selection of tenants for Crown Lands Pointe aux Feuilles, Mont Choisy and Union Park.

292. Officers of the Extension Service advised tenants of land settlements and, in general, the holdings were maintained satisfactorily. Adverse climatic conditions resulted in lower yields than usual.

293. Rent collection was again most unsatisfactory, and legal action had to be resorted to against the debtors.

294. At Terre Rouge, work started on the extension of an irrigation canal which will provide water for the irrigation of an additional eleven arpents. At Grand Sable, four additional allotments, of half an arpent each, were leased.

295. Tenants of Vale, La Cave and Belle Vue continued to maintain their holdings satisfactorily. Drought conditions affected cropping at La Cave, where only foodcrops and vegetables are grown.

296. At Palmar, tenants took advantage of the summer rains to plant foodcrops and vegetables. Part of the area was left uncultivated during dry weather. Cropping to mixed vegetables was on the increase.

297. At Bee Manique, a few holdings were uncultivated, but the remaining holdings were maintained satisfactorily. The repair of the roads of the settlement was commenced.

298. At Plaisance, all holdings were occupied, a few transfers took place during the year. Foodcrops and vegetables were produced.

XV. Extension Services

VISITS TO PLANTATIONS

299. More than 8,100 field visits were paid to sugar cane and vegetable growers and advice covering all aspects of the various crops grown was given. Particular attention was paid to the rational use of complete fertilizers with respect to mixtures method and time of application to foodcrops and sugar cane and the timely control of pests and diseases of economic importance to foodcrops. Advice was tendered on the correct use of the wide range of chemicals on the market for the control of pests and diseases. The importance of the choice of sugar-cane variety in relation to regions and the planting of disease-free material was stressed as was the need for crop rotation in food-crop production in relation to pest and disease control and the use of healthy planting material of proven varieties.

DEMONSTRATION WORK

300. Eleven fertilizer demonstrations were laid down on sugar-cane. Demonstrations on the control of pests and diseases on foodcrops and vegetables were increased. One hundred and fourteen demonstrations were carried out with marked yield responses.

301. One hundred and three evening meetings were held during the year, twenty six of these were specifically for small sugar-cane farmers. Extensive use of visual aids such as wall charts, slides, live specimens, films and leaflets was made at all lectures. The main subjects reviewed were:

- (a) the incidence of the virulent strain of gummosis in sugar-cane, eradication of the very susceptible varieties M.147/44, B.3337 and B.34104 and their replacement by resistant varieties;
- (b) the use of complete fertilizers on sugar-cane and foodcrops, the timing and method of application and the use of compound fertilizers in relation to those available on the market;
- (c) the control of pests and diseases and precautions to be taken when using pesticides and fungicides;
- (d) better utilisation of available land and soil conservation measures.

302. A series of specialised lectures, eight in number, for the benefit of potato growers of Pamplémousses, Rivière du Rempart, Moka, Flacq, Plaines Wilhems and Black River were held at the beginning of the first potato season. Among the more important points dealt with were the use of complete fertilizers, the importance of planting certified seeds and preventive spraying against Blight, the most serious disease affecting potatoes.

303. With a view to increasing contacts with small sugar-cane planters and to making exchange of information between the planters and the officers of the Extension Service more efficient to the ultimate benefit of the former, it was decided to concentrate on working with and through existing planters' organizations. With this aim in view, the Sugar-cane Credit Co-operative Societies were approached and grouped on a regional basis. Preliminary meetings were held with the Secretaries of the Societies and a programme of lectures was laid down. In the course of the year 15 lectures to such regional co-operative groups were given.

304. Late in the year, a start was made to group all sugar-cane planters on a regional basis with the aim of reaching the maximum number of planters; the convening of planters to meetings being the responsibility of the local leaders of these groups. The programme was commenced in the district of Moka, where six lectures were delivered.

PROPAGATION AND DISTRIBUTION OF CANE VARIETIES

305. In an effort to help solve the problem of replacement of sugar-cane varieties susceptible to the new strain of gummosis, especially in the drier regions, most of the sugar-cane propagation areas on the demonstration centres were planted to the variety M.442/51. The nurseries yielded well and the canes were in great demand. In all, 25,345 canes of M.442/51 compared with 550 canes in 1965 were sold. The Sugar Planters' Rehabilitation Fund Nursery at Pointe-aux-Sables distributed 787 tons of planting material to cane farmers.

PESTS AND DISEASES

306. Bacterial Wilt and Late Blight, the major diseases affecting tomatoes and potatoes, were not very severe during the year. Late Blight was not so virulent, especially during the early winter months, because of dry weather and again in the latter part of the second potato season. The

incidence of leaf roll was very high, particularly in plantings made from some of the King George seed, imported from South Africa. There were isolated occurrences of Potato Scab on the Japanese varieties.

307. The following pests were of common occurrence: red spiders, aphids, cutworms and tuber moth borers on potatoes. Attacks of cutworms, red spiders and tuber moth borers were rather severe on potatoes during the hotter months of the second season but good control was obtained by the use of insecticides.

308. There were isolated cases of sugar-cane attacked by the spotted borer, but the incidence was generally mild. Attacks by the insect, *Allisonotum piceum* was reported from a few localities, especially on virgin sugar-cane. The incidence of red rot has increased in some localities.

309. The gumming disease survey of small planters' sugar-cane holdings continued satisfactorily on a factory area basis. Of the 23 factory areas, twelve, situated mostly in the eastern, southern and central parts of the island, were completely surveyed. By the end of the year, some 40,000 arpents were surveyed out of a total of about 67,000 arpents. From data available, the worst affected areas were found to be in the coastal belt in the eastern and southern parts of the island where the variety M. 147/44 is extensively cultivated. The survey of a considerable portion of the north has not yet been carried out and the disease is known to be in the area.

310. The new strain of leaf scald disease was found to be severely affecting the variety M. 202/46. Almost everywhere this variety is cultivated, particularly in the humid regions where it has performed very well, many fields showed symptoms of severe infection.

FOODCROP GROWING IN CANE INTER-ROWS

311. Intercropping of virgin sugar-cane continued to be a regular feature on small planters' lands. Large acreages, especially in the North, were devoted to potatoes, tomatoes, groundnuts, beans and maize. The fairly high and guaranteed price for potatoes throughout the year stimulated production and a noteworthy feature was the entry of a large number of large estates into potato production; a considerable portion of the total area under potatoes was planted by large estates.

312. The *ad hoc* committee, set up by the Honourable Minister of Agriculture and Natural Resources, to encourage the production of foodcrops on sugar estates on fallows and in interlines continued to obtain the full co-operation of all concerned. The following table illustrates the acreage planted in arpents in 1965 and 1966 by members of the Mauritius Sugar Producers Association who have submitted these figures.

Year	Maize		Beans		Potatoes		Groundnuts		Miscellaneous		Total	
	Full Plantation	Interlines	Full Plantation	Interlines	Full Plantation	Interlines	Full Plantation	Interlines	Full Plantation	Interlines	Full Plantation	Interlines
1965	217	1,362	12	683	6	1,001	282	1,256	1,040	401	1,557	4,703
1966	353	1,751	33	254	62	1,120	210	311	989	241	1,647	3,677

The planned total acreage for 1966 of 708 arpents of full plantations and 3,406 arpents of interlines was exceeded as was the case in 1965.

PERMANENT DISTRICT DEMONSTRATION CENTRES

313. A substantial acreage of the demonstration centres was devoted to the cultivation of bananas, pineapple, manioc, sweet potatoes and fodder grasses to meet the demands of planters for planting material. The acreage under M.442/51, which was increased the year before, helped to provide planting material for replacement of the sugar-cane varieties susceptible to Gummosis. Fertilizer and Varietal demonstrations were laid down on the more important commercial crops. The effectiveness of recommended pest and disease control chemicals was demonstrated. Trials on the seasonal behaviour of four varieties of groundnuts and two varieties of beans were continued. Varietal demonstrations were planted with the available potato varieties in both the first and second seasons. Demonstrations were planted of hybrid varieties of maize and varieties of onion, which had shown promise on experiment stations, compared with local varieties. Late in the year, sunflower varieties underwent performance testing in the interlines of ratoon canes.

314. The production of plants of the more popular fruit trees is well established on demonstration centres and considerable amounts were produced and sold to the public.

315. The livestock aspect of demonstration work received increased attention. Increased accommodation was provided, particularly for the multiplication of Anglo-Nubian goats. Poultry houses were extended and new cow byres erected.

316. In an effort to satisfy the increasing demands for chicks of the laying breeds, an incubator was installed at one demonstration centre. In the middle of the year, arrangements were made for the testing of the cross "Cou Tout Nu" cockerel and "White Leghorn" hen for laying and table poultry.

317. Most of the demonstration centres have been provided with two pit silos each, one for filling at the beginning of the milling season, to provide feed during the period of fodder shortage at the end of the year and the other for filling later in the milling season, to be opened in the second fodder scarcity period, just preceding the sugar-cane harvest.

ARSENAL DEMONSTRATION CENTRE

318. 1,874 kgs of foodstuffs were produced and 11,237 canes of the variety M.442/51 were sold to growers. About three tons of groundnuts were sold as well as vegetables, fruit trees and fourteen rabbits. The silo pit, which was filled last year, was opened in September and the pit was refilled in November. At the end of the year, the crops were being affected by drought.

MAPOU DEMONSTRATION CENTRE

319. 2,369 kgs of foodstuffs were produced and 1,475 canes of the variety M.442/51 were distributed to planters. About one ton of groundnuts was sold. The silo pit was opened in May and refilled in November. Planting material of banana, manioc and sweet potatoes were supplied free of charge to the public. Fruit trees were produced, plants and vegetable seeds were on sale. Goats and rabbits were raised and four rabbits were sold.

VACOAS DEMONSTRATION CENTRE

320. Intensive cultivation of vegetables and foodcrops, particularly winter vegetables, was carried out. The centre specialises in market gardening, prominence being given to crops such as cabbage, cauliflower, petsai, etc.

RIVIÈRE DES ANGUILLES DEMONSTRATION CENTRE

321. 3,134 kgs of foodstuffs were produced. 3,980 canes of the variety M.442/51 were sold as planting material to planters. Four and a half tons of sugar-cane were sent for milling. 251 plants were sold out of which 63 were produced on the station. 350 eggs were produced for hatching purposes. Three Anglo-Nubian bucks and eight rabbits were sold to breeders. There were nine buck services to does from various localities and a few rabbits were brought to the station for service. Banana suckers, sweet potato cuttings and pineapple suckers were supplied to planters free of charge.

CENTRE DE FLACQ DEMONSTRATION CENTRE

322. 3,792 kgs of foodstuffs were produced and five tons of cane were sent for milling. Some 10,000 canes of the variety M.442/51 were supplied to planters. The two pit silos were filled in August and November respectively. Some 900 fruit trees were sold during the year of which some 600 were produced on the station. One bull calf and two bucks were sold to breeders, the Anglo-Nubian buck served ten does belonging to farmers. A new deep litter poultry pen was erected together with a new goat pen. An incubator was installed to provide for the increasing demand for chicks. Trials commenced on the performance of the progeny of a cross between "Cou Tout Nu" cocks and "White Leghorn" hens.

PLAISANCE DEMONSTRATION CENTRE

323. 3,840 kgs of foodstuffs were produced and 6 tons of cane were sent for milling. Some 1,800 units of sugar-cane of the variety M.442/51 were distributed. 86 plants were sold, 30 of which were produced on the station. 901 eggs were produced out of which 429 were used for hatching. Five Anglo-Nubian goats, one doe and three rabbits were sold. Banana suckers, manioc and sweet potato cuttings and pineapple suckers were distributed free of charge.

ASSISTANCE TO SMALL PLANTERS

324. During the year under review, officers of the extension service participated in eight evening meetings of small planters of Mare Choisy at Roche Noires. With the advice and encouragement of the officers, a sum of Rs 400 was collected on a voluntary basis. This sum was spent in December for clearing Rivière Françoise and the main drains which had once more become choked by water hyacinth and other weeds. As a result of this voluntary effort, about half a mile of waterway was cleared. As a result of improved drainage, farmers were able to crop their lands almost continuously and their efforts were rewarded by good returns.

325. Several visits were paid to school gardens and advice given on the growing of suitable crops. The schools appeared to be becoming more interested in the planting of fruit trees and ornamentals. Late in the year,

a request for assistance in formulating comprehensive plans for planting fruit trees and ornamentals in all schools was received. As a result, officers have commenced a survey to advise on the layout and disposition of trees and general planting requirements.

326. The need for the soil conservation in new plantations of sugar-cane on sloping land is now well recognised by planters in general and most plantations on such lands are carried out across the slope. A specific request for help in the contour lay-out of a sugar-cane area was received and the necessary assistance was given.

LIAISON WITH THE MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE

327. The close contact established between officers of the Extension Service and those of the Mauritius Sugar Industry Research Institute was maintained throughout the year. It is to be noted that whilst the lectures have so far been dealing exclusively with sugar-cane, one of the lectures this year was a review of the growing of potatoes in virgin sugar-cane interlines and the preliminary assessment of trials under way in interlines. The following talks delivered by officers of the Institute were attended by officers of the Extension Service:

Date	Subject
22. 2.66 ...	Danger de confusions variétales—Le probleme de la M. 93/48
21. 3.66 ...	Maladies de la canne
3. 5.66 ...	Nouvelles variétés de canne—Problemes posés par la selection
16. 5.66 ...	Recherche sur la canne à sucre en 1965
20. 6.66 ...	Alimentation en phosphore de la canne
25. 7.66 ...	Quelques aspects de controle chimique
30. 8.66 ...	Le Silicate de Chaux—un nouvel amendement pour les laterosols seniles.
26. 9.66 ...	Culture de la pomme de terre en entrelignes de cannes (Resultats préliminaires)
25.10.66 ...	La Gommose et le probleme variétal
6.12.66 ...	Introduction et élevage de la mouche parasite du borer ponctue (<i>Diatraeaophaga Striatalis</i>)

MISCELLANEOUS ACTIVITIES

328. The "Produce More Food" campaign was extended to the villages of Notre Dame, Ilot, Vale, Fond du Sac, Quartier Militaire, Centre de Flacq, Souillac and Rose Belle. As in past years, efforts were mainly directed towards the growing of fruit trees, foodcrops and the raising of chicks in the following villages: Ilot d'Epinay, Notre Dame, Cottage, Vale, Fond du Sac, Camp Ithier, Centre de Flacq, Providence, Petit Verger, Cascavelle, Petite Rivière, New Grove, Rivière des Créoles, Rose Belle, Surinam, Rivière des Anguilles, Solférino, Carreau La Liane. Committees met at regular intervals and weekly visits were paid by Extension Officers.

329. Fruit trees and month-old chicks of the "707" breed were delivered to "Produce More Food" campaign villages, Young Farmers Clubs, Youth Clubs and to the public through the "Freedom From Hunger Campaign", transport being provided by the Extension Service. The demand for birds of the recommended laying breed increased further this year and over 7,400 were supplied at a subsidised price. Some 1,700 fruit trees were delivered through the "Produce More Food" campaign. Planting material of grasses and various foodcrops such as banana, sweet potato, manioc, acacia and pineapple were given free on request. Eleven Anglo-Nubian goats

were sold to breeders for upgrading of the local livestock as well as twenty-nine rabbits. More fruit trees, delivered at the beginning of the campaign, came into bearing.

330. A series of twenty-three lectures, held on a regional basis, was organised during the year for the benefit of Young Farmers. The lectures, which were of an elementary nature, dealt with a variety of important aspects of farming ranging from the application of fertilizers and manures to pest and disease control on crops and potato growing. The year also saw an increase of interest on the part of Youth Clubs in Agriculture and fifteen lectures were delivered to them. The Extension Service also participated in the activities of the Teens' Clubs, set up in schools by the Ministry of Education and Cultural Affairs during the August vacation. Assistance was given in getting school teenagers interested in gardening and in the setting up of vegetable gardens; eleven talks were given followed by practical demonstrations.

331. The Extension Service also participated in the pilot scheme for rural community development at Rivière des Anguilles. The preliminary phase of meetings for discussions and planning the scheme was assisted by the extension officer for Savanne and a number of talks were subsequently given to the villagers.

332. The FAO/UNICEF/WHO Agricultural Extension Training in conjunction with the Development of Home Economics and Nutrition Education project was continued. The FAO Extension Expert continued to render valuable assistance by the in-service training of extension staff and assisting with the lectures and short courses given to farmers, villages taking part in the "Produce More Food" campaign, rural youth etc. The project has rendered considerable assistance to the extension service in the production of booklets and/or leaflets and by providing materials for their production. Leaflets produced have dealt with potato cultivation, fertilizer application, fruit tree growing, poultry keeping and sugar-cane cultivation; 4,500 leaflets were printed. "Farming News" has appeared monthly since February, 1,000 copies being printed monthly.

333. Following a survey of the state of Home Economics in the field by the FAO Associate Home Economist, a training programme was drawn up. Two training courses were run successfully during the year for Female Welfare Officers and Welfare Workers. The courses were run by the FAO Associate Home Economist and Extension Expert with assistance from specialists of various Ministries and the extension services of the Department. Following the above training courses, the trainees themselves conducted short courses at Welfare Centres. Four series were conducted, attendances being 175 women for the first programme, 400 women for the second, 359 women and 502 girls for the third and 472 women and 461 girls for the fourth. The project also supplied a large number of leaflets in connection with the Home Economics programme.

AGRICULTURAL SHOW

334. In co-operation with the Agricultural Division, the Extension Service held open days on the 29th and 30th of October at the Plaisance Demonstration Centre and Experimental Station. The show drew a large number of people over the two days. Interest was centred on the production of oranges, coconuts, pineapples and the performance of imported varieties of onion compared with the local variety.

335. Nine silo pits were filled with cane tops. The material from pits which were filled last year was generally of good quality and palatable. Cow-keepers evinced little interest in the silage produced in spite of repeated efforts to make them realize the help to be obtained therefrom in the periods of fodder shortage.

336. There were very few requests from planters for the use of the spraying facilities for pest and disease control on potato. As was remarked last year, most of the professional planters now possess their own sprayers, rendering the spraying facilities no longer necessary, except in cases of severe and widespread outbreaks.

337. Under the Certified Seed Potato Subsidy Scheme for small potato planters, registration of growers was carried out as in the past. 1,493 permits were issued and 721 tons of seed potatoes qualified for subsidy. Some 900 arpents of land were visited prior to delivery of these permits. The year saw a greatly increased participation of large planters in potato production. Some 535 tons of seed potatoes were purchased outside the subsidy. It is estimated that a record of 1,260 arpents of land were put under potatoes. The generally favourable conditions that prevailed throughout most of the season, helped to produce a record average yield, although yields were depressed to some extent early in the first season and again later, at the end of the second season, because of drought. 1,260 arpents of potatoes yielded an estimated 8,490 metric tons, a record production with a mean yield of 6.7 tons per arpent. The producer price was fairly high and stable on account of the activities of the Agricultural Marketing Board.

338. Various surveys were conducted during the year including:

1. Assessment of Crown Land for rental value and suitability for agricultural development;
2. Gummosis and leaf scald survey to assess distribution in sugar-cane fields of small planters;
3. Assessment of damage done to crops as a result of the indiscriminate use of herbicides;
4. Investigation of fodder problems;
5. Collection of statistical data for foodcrops under harvest;
6. Assessment of potato and onion production for the Agricultural Marketing Board;
7. Weekly recording of market prices for vegetables;
8. Estimation of the annual foodcrop and fruit harvest.

XVI. Foodcrops

339. The following tables were prepared from data collected by the Extension Service:—

AREA HARVESTED (ARPENTS)

Year	Maize	Manioc	Aronilles	Sweet Potatoes	Groundnuts	Irish Potatoes	Beans & Peas	Pine Apples	Brinjal	Tomatoes	Ginger	Creepers	Mixed Vegetables	Bananas	Total
1965	...	426	59	93	635	1,015	387	68	271	1,800	79	1,742	1,641	1,021	9,803
1966	...	430	97	69	577	1,260	760	86	296	1,356	136	1,645	1,291	1,926	8,973

ESTIMATED AVERAGE YIELD KGS. ARPENT

Year	Maize	Manioc	Aronilles	Sweet Potatoes	Groundnuts	Irish Potatoes	Beans & Peas	Pine Apples	Brinjal	Tomatoes	Ginger	Creepers	Mixed Vegetables	Bananas	Total
1965	...	696	4,411	5,137	906	3,900	1,070	4,533	5,550	3,000	5,100	5,336	5,297	10,106	...
1966	...	698	4,718	5,061	1,442	6,700	962	4,978	6,377	4,203	5,603	6,483	5,944	9,744	...

ESTIMATED TOTAL COMMERCIAL PRODUCTION (METRIC TONS)

Year	Maize	Manioc	Aronilles	Sweet Potatoes	Groundnuts	Irish Potatoes	Beans & Peas	Pine Apples	Brinjal	Tomatoes	Ginger	Creepers	Mixed Vegetables	Bananas	Total
1965	...	296	262	478	575	3,972	950	306	1,504	5,400	403	9,296	8,693	10,318	42,722
1966	...	300	458	349	832	8,442	754	428	1,888	5,700	762	10,664	7,674	9,023	47,622

The area shown above was effective acreage harvested and includes the aggregate acreages of different crops grown on the same land in one year, as well as foodcrops interplanted with sugar-cane.

XVII. Experiment Stations

CUREPIPE EXPERIMENT STATION

Development

340. Four hundred feet of new roads, 12 ft wide, were constructed and the main drive with a surface area of 34,690 sq. ft asphalted. About $1\frac{1}{2}$ acres of land were cleared, levelled and planted under *Setaria sphacelata*. Two areas of fallow land of about a quarter of an acre each were cleared, levelled and planted, one under vegetables and the other under bananas. 3 acres of rather marshy, uncultivated land were cleared, levelled and drained; 1 acre was planted to fodder in December, half an acre prepared for maize and one acre for a *Colocasia* crop. 1,386 pine seedlings were planted in 3 rows at a spacing of 6'×6' along the banks of streams and alongside the station boundary fences.

341. A Typhoon Axial-Flow Fan Unit was installed in the potato store and has been used to blow the sprout depressant "Nonanal" through the potatoes in a storage trial. The varieties King George, Norin I, Up to Date, Pimpernel and Wheeler were included in a storage trial laid down at the end of October and planned to last for 6 - 8 months. In the trial cold air is blown through the potatoes in store for half an hour in the early morning daily and 'Nonanal' twice a week.

342. A shed 8'×11' and 7' 6" high was built to shelter the Australian black swans.

FODDER

343. Rye grass trials continued. Germination of grasses sown in December, 1965, was good but, by March, all had died. The grasses were resown in March with the same result. The varieties of Rye grass planted were:

- (1) *Perennial*;
- (2) *Perennial Aberystwyth S. 23*
- (3) *Perennial Aberystwyth S. 101*
- (4) *Perennial Short Rotation H. 1*
- (5) *Italian*
- (6) *Italian Special Local*
- (7) *Italian Aberystwyth S. 22*
- (8) *Italian Multiflorum*.

344. The following seeds were sown in observational plots: Lucernes African, Sudan grass Ordinary, Sweet Sudan, H.R. Lucerne, Townsville Lucerne, Louisiana White Clover, Kentucky Blue grass, Blue Panic, Green Panic, *Glycine Javanica* and *Centrosema pubescens*. Of these only Sweet Sudan, *Glycine Javanica* and *Centrosema pubescens* grew successfully.

345. The fertilizer trial, commenced on 16th October, 1963 on *Setaria sphacelata* (var. Bua River) with two rates of nitrogen of 40 and 80 lbs per acre (treatment N₁ and N₂ respectively) applied after each cut in the form of sulphate of ammonia, combined with annual applications of:

- (a) 40 lbs K₂O per acre sulphate of potash plus 40 lbs P₂O₅ per acre as single superphosphate (treatment B₁);
- (b) 80 lbs K₂O per acre and 80 lbs P₂O₅ per acre (treatment B₂)

was cut 5 times during the year giving the following results:

Treatments	...	...	N ₂ B ₂	N ₂ B ₁	N ₁ B ₂	N ₁ B ₁
Yields (tons/acre)	...	...	50.0	44.5	35.0	29.5
		L.S.D. @ 5%	= ± 7.28 tons per acre			
		L.S.D. @ 1%	= ± 10.47 tons per acre			

There was again a definite significant response to the higher rate of nitrogen and no response to increased rates of phosphate and potash.

346. The other fertilizer trial with *Setaria sphacelata* (Var. Bua River), laid down on 17th March, 1965, was continued. The treatments consisted of:

- 2 rates of nitrogen, namely 30 lbs per acre (N₁) and 60 lbs per acre (N₂) as sulphate of ammonia applied after each cut.
- 2 forms of P₂O₅, namely basic slag and triple superphosphate each applied at 30 lbs per acre and 60 lbs per acre in mid-January and mid-June (symbols B₁ and B₂ for basic slag and T₁ and T₂ for triple superphosphate).
- 2 rates of K₂O, applied at the same time as the P₂O₅, of 30 lbs per acre (K₁) and 60 lbs per acre (K₂) as muriate of potash. 6 cuts were taken and the yields for the year in tons per acre were as follows:

		B ₁	T ₁	B ₂	T ₂
N ₁ K ₁ ...	...	52.8	49.3	47.9	57.2
N ₂ K ₁ ...	...	55.3	52.0	60.4	56.5
N ₁ K ₂ ...	...	50.4	51.3	51.9	55.4
N ₂ K ₂ ...	...	61.6	63.3	58.8	65.5

No significant difference was observed.

347. The spacing trial with *Setaria sphacelata* (var. Bua River) with spacings 1', 1½', 2', 2½' and 3' by 6" and 1' respectively in the row, planted on 19th December, 1964, was continued. Five cuts were taken and the yields in tons per acre, compared with 1965, were as follows:

Spacing	Tons per acre fresh material	Spacing	Tons per acre fresh material
1. 3' × 1'	46.63	6. 2' × 6"	42.16
2. 3' × 6"	45.41	7. 1½' × 1'	38.76
3. 2½' × 1'	44.78	8. 1½' × 6"	39.34
4. 2' × 1'	43.54	9. 1' × 6"	34.04
5. 2½' × 6"	42.91	10. 1' × 1'	37.62

L. S. D. @ 5% = ± 5.630 tons per acre

L. S. D. @ 1% = ± 7.721 tons per acre

The trend in yield was reversed in the second year of this trial in that yields were highest with the wider spacings and lowest with the closer spacings.

348. A weeding trial on *Setaria sphacelata*, started in July, 1965, was continued. Treatments were as follows:

- weeding after each cut
- occasional weeding and
- no weeding

The trial was planted at a uniform spacing of 12" × 18". Five cuts were made, the yield in tons per acre of fresh fodder were as follows:

- Occasional weeding: 50.7 tons
- Weeding after each cut: 49.5 tons
- No weeding: 49.2 tons

349. The *Setaria* trial with 8 selected strains from Curepipe, planted in November, 1963, was cut six times with the following results:

<i>Setaria</i> Strain	...	...	5	8	2	6	1	7	4	3
Tons per acre (fresh weight)	...	...	34.9	34.4	33.6	32.6	32.0	30.5	27.9	26.5
L. S. D. @ 5% = ± 6.9 tons per acre										
L. S. D. @ 1% = ± 9.4 tons per acre										

350. The variety trial with 4 strains of Elephant grass from Reduit and a selected strain from Curepipe, laid down in May, 1963, was continued. Four cuts were taken with the following results in tons of fresh fodder per acre:

Strain	Date of Cut				
	26th Feb.	30th April	20th July	23rd Nov.	Total
Reduit strain No. 1	5.49	5.42	3.26	2.62	16.79
No. 2	5.66	6.28	3.80	2.62	18.36
No. 3	4.69	4.90	3.32	2.42	15.33
No. 4	5.25	6.52	3.69	3.26	18.72
Curepipe selected	5.30	6.57	4.28	2.57	18.72
TOTAL	26.39	29.69	18.35	13.49	87.92

There was no significant difference between the different strains.

351. A spacing trial with Elephant grass at spacings of 1', 2', 3' and 4' between rows by 6" and 1' in the row, planted on 11th January, 1965, was cut 5 times. The calculated yields in tons per acre were:

Spacing	...	...	3' x 1'	4' x 1'	2' x 1'	4' x 6"	3' x 6"	2' x 6"	1' x 6"	1' x 1'
Tons per acre (fresh weight)	...	...	29.69	28.16	27.00	26.48	25.93	21.53	20.62	20.25
L.S.D. @ 5% = ± 5.629 tons per acre										
L.S.D. @ 1% = ± 7.839 tons per acre										

ORCHARD CROPS

Citrus

352. The mandarins, planted in 1958, flowered and bore fruit, except for variety Empress which flowered but did not set fruit. Two Valencia oranges and two Java grapefruit bore fruit for the first time. All the Mandarins, the varieties Fagan, Local, Djeroek Keproek Poenten and Kjeroek Garoet were found to be sweet.

Guava

353. Seventy-eight trees of various varieties, planted on 13th April, 1960, bore fruit with the following results:

No. of trees	Variety	No. of fruit harvested	Weight of fruit (Kgs)	Av. No. per tree	Av. Wt. per tree (Kgs)	Highest yield of one tree	
						No. of fruit	weight (kgs)
56	South African White	8614	550.075	154	9.822	351	21.1
4	Red Round	439	34.200	109	8.550	167	8.6
2	Seedless	26	1.525	13	.763	20	1.1
1	Acid-cream (coloured flesh)	284	20.900	—	—	—	—
2	Acid Florida strain (pink coloured flesh)	60	4.675	30	2.337	33	2.7
2	Sweet (olive coloured flesh)	380	23.700	190	11.850	224	15.2
11	Miscellaneous	1250	84.215	113	7.656	583	34.0

Coffee

354. Thirty-three out of the 47 bushes *Arabica* coffee, planted on 22nd January, 1963, flowered and bore fruit. The three best yielding trees yielded:

1,225 fresh cherries weighing 2.470 kgs

1,217 fresh cherries weighing 2.375 kgs

1,222 fresh cherries weighing 2.175 kgs

Two out of forty-five *Excelsa* coffee bushes, planted at the same time, flowered but the fruit was shed before maturity.

Persimmon

355. The grafted persimmon plants have not grown well and have produced no fruit. Two local seedlings, planted in 1958, produced a number of fruit which were acid and unpalatable.

356. The banana trial, using three different types of planting material, corms, swords and suckers, planted at four different times of the year in 1963, was continued. There was again no significant difference between treatments.

Foodcrops

357. The 3rd fertilizer trial with *Colocasia esculenta* (Arouille Carri), planted in July, 1965, was harvested in February, 1966. N, P₂O₅ and K₂O were each applied at 0, 30 and 60 lbs per acre in the form of sulphate of ammonia, triple superphosphate and sulphate of potash respectively. No significant response was obtained.

358. The spacing trial with *Colocasia esculata* (arouille violette) with spacings of 1½' × 1½'; 1½' × 2', 1½' × 2½', 2' × 2', 2' × 2½' and 2½' × 2½', laid down in July, 1965, was harvested in April, 1966. Manure and fertilizers were applied as follows:

farmyard manure ... 10 tons per acre

N, P₂O₅ and K₂O at 30, 48 and 60 lbs per acre in the form of sulphate of ammonia, triple superphosphate and sulphate of potash respectively.

The following results were obtained:

Spacings	Mean Yield (tons per acre)
1½' × 1½'	3.80
1½' × 2'	3.70
2' × 2½'	3.50
1½' × 2½'	3.07
2' × 2'	2.84
2½' × 2½'	2.77
L.S.D. @ 5%	= ± .719 ton/acre
L.S.D. @ 1%	= ± .974 ton/acre

Potato

359. The varieties Arran Chief and Roseline Sesamus were planted in observation plots in December, 1965 and harvested three months later. Yields were 3.49 and 6.25 tons per acre respectively, Arran Chief being more susceptible to blight.

360. A variety trial with Wheeler, Norin I, Up to Date, King George and Pimpernel seed, grown locally, was planted in November to observe their behaviour and yield during warm wet weather.

361. Fifteen tons of a Japanese potato variety, lifted in December, 1965, from Beau Plan Sugar Estate (in the north of Mauritius) were placed in two bulk bins. Cold air and/or vaporised 'Nonanol' was blown through the potatoes in the bins by a Typhoon Axial Flow Fan Unit. The tubers were attacked by the potato tuber moth. Repeated treatments with D.D.V.P. and pyrethrum did not prevent the tubers from rotting and the experiment was abandoned in May.

362. Another potato conservation trial was laid down in December, 1965 the following varieties Suzana, Arran Chief, Up to Date, King George, Japanese and Aquilla.

363. A week before lifting, the field in which the crop was grown at Richelieu Experiment Station, was divided into two, and one half was sprayed with Maleic Hydrazide at rate of 25 gm in 2 gallons of water. The two treatments were stored separately in trays by varieties. By mid-March it was clear that the Maleic Hydrazide treatment in the field was ineffective in inhibiting sprouting.

Sweet Potato

364. A variety trial with the 6 varieties mentioned below was planted on 21st of April with a view to comparing their performance in winter. The plots received farmyard manure at five tons per acre, sulphate of ammonia, triple superphosphate and sulphate of potash at 200 lbs, 100 lbs and 100 lbs per acre respectively. Sweet potato vines measuring 1 ft in length were planted on mounds 3 feet apart and 1 ft distant on the mound with 2 vines per mound. The crop was lifted on 8th of November and yields were as follows:

<i>Variety</i>	<i>Yield Tons per acre</i>
Joes	4.67
Violette	4.62
Patate Raisin	3.67
Patate Rouge	3.06
Pelican Processor	2.67
Mirabelle	2.56

L.S.D. @ 5% = $\pm$ 1.56 tons / acre

L.S.D. @ 1% = $\pm$ 2.14 tons / acre

365. A similar variety trial to compare the yield in summer of the same varieties was laid down in November.

*Chou-Chou — *Sechium edule**

366. A variety trial with 3 varieties in 4 randomized blocks, was planted on 16th June. The fruit of the three varieties were as follows:

Small, pale green, smooth skinned,

Large, green, thorny

Large, green, smooth-skinned,

Holes were spaced at 10' × 10'; 3 seeds per hole. Farmyard manure 2 baskets equal to 25 lbs and sulphate of ammonia at 50 grms per hole were applied before the seeds were planted. In August and again in October, a top dressing of sulphate of ammonia at the rate of 50 grms per hole was given.

367. A good stand was obtained and flowering commenced on the 1st October, the first crop was harvested on the 28th October. Thereafter, harvesting continued at weekly intervals. At the end of the year, the total yields of the varieties were as follows:

<i>Variety</i>	<i>Yield tons per acre</i>
Large, green, thorny ...	5.12
Small smooth-skinned ...	4.84
Large green smooth-skinned	2.80

368. These preliminary observations seem to indicate that improvement in yield can be obtained by field selection.

369. Miscellaneous vegetables, such as cabbages, cauliflower, lettuce, pumpkin, calabash, squash, beans and peas were grown also at various times of the year. Total revenue from the sale of vegetables amounted to Rs 2,527.64

370. The following vegetables were grown for seed production namely pumpkin, calabash, luffa, cucumber, squash and mustard.

LIVESTOCK

371. Ducks and geese were kept in association with the fresh water fish ponds. 29 ducks and 3 geese were sold. At the end of the year, there were 20 ducks and 23 ducklings, 11 geese and 7 goslings on the station; 2,042 duck eggs were obtained, most of which were sold.

372. The Black Swans received from the Australian Government in 1958 continue to thrive but have not so far laid eggs.

373. 1,179 tons of farmyard manure were supplied to various stations of the Department as well as to other Departments and Ministries.

374. The total rainfall was 108.72 inches compared with last year's total of 161.4 inches. The months of September to November were particularly dry compared with the previous year.

375. The total revenue from the sale of produce amounted to Rs 3,425.74.

PLAISANCE EXPERIMENT STATION

Orchard Section

376. The mango orchard was fenced. Two shelters were constructed for the use of the labour force. The roads were levelled and rolled.

Citrus

377. The long term fertilizer trial was continued. No significant difference in yield of fruit was found between treatments. Several trees have given impressive yields of fruit, the best yielders by varieties were as follows:

Variety	Tree No.	Total No. of fruit	Total Weight (lbs)	Average wt. of fruit (oz)
Pineapple ...	1	116	75.55	10.4
do ...	3	88	68.02	12.4
do ...	2	66	65.30	15.8
Washington Navel ...	13	200	85.03	6.8
do ...	4	200	76.06	6.1
do ...	1	162	96.01	9.4
Valencia ...	6	333	142.20	6.8
do ...	5	328	132.94	6.5
do ...	8	246	122.61	8.0
Parson Brown ...	10	405	136.42	5.4
do ...	7	294	168.03	9.1
do ...	9	243	92.88	6.1
Navalencia ...	7	114	37.58	5.3
do ...	1	85	50.79	9.5
do ...	6	69	37.19	8.6

378. Average yields by varieties were as follows:

Varieties	Planted 1961					Planted 1962				
	Total			Average		Total			Average	
	No. of trees	No. of fruit	Weight (lbs)	No. of fruit	Weight (lbs)	No. of trees	No. of fruit	Weight (lbs)	No. of fruit	Weight (lbs)
Pineapple ...	5	375	272.43	75	54.48	5	174	123.04	35	75.39
Washington Navel ...	10	760	458.00	76	45.80	64	1,672	996.25	26	15.57
Valencia ...	5	1,121	530.19	224	106.04	7	1,587	714.53	226.7	102.08
Parson Brown...	—	—	—	—	—	16	1,723	1,121.10	107.7	70.07
Navalencia ...	—	—	—	—	—	22	792	400.37	36	18.20

379. Six plants each of Seminole Tangelo and Minneole Tangelo, five plants each of Empress Mandarin and Djerok Keprok Poenten Mandarin and 4 plants of the Local Mandarin (Labourdonnais strain) were planted in May. Twenty-two Florida Rough Lemon seedlings and 19 Dwarf Lemon seedlings were also planted on field boundaries.

Coconuts

380. Several trees of the Malayan Dwarf varieties, planted in May, 1963 and the Pemba variety, planted in January, 1962 flowered and fruited in appreciable numbers. The Green Malayan Dwarf variety appeared to be the best yielder followed by Yellow and Red.

Grapes

381. The following varieties, planted in February, 1964 flowered and produced fruit: Couderc 13, Citronelle, Isabelle Vacoas and Isabelle Barkly. Couderc 13 was the most vigorous followed by Isabelle Vacoas, Isabelle Barkly and Citronelle. The fruit of all varieties again proved to be acid.

382. The variety Citronelle has been found to be a good table grape but when grown on its own roots, it has not thrived on all stations save at Abercrombie. Efforts are being made to overcome this by grafting Citronelle

on to various root stocks. One such trial was commenced in August when Citronelle was grafted on to various root stocks which were planted a year earlier.

Litchi

383. Layers, planted in March, 1963, continued to grow satisfactorily; twenty out of seventy-five plants flowered and five produced a few fruit.

Pineapple

384. The 3³ factorial fertilizer trial was continued. Good harvests of fruit were obtained.

385. The calculated yields in tons per acre were as follows:

	P0	P1	P2	K0	K1	K2	means
N0 ...	7.386	7.869	7.505	6.682	7.261	8.817	7.586
N1 ...	9.563	9.153	6.906	9.538	9.487	8.598	8.540
N2 ...	8.097	9.688	9.374	9.923	10.073	7.164	9.053
P0 ...	—	—	—	8.535	8.547	7.964	8.348
P1 ...	—	—	—	9.626	8.579	8.505	8.903
P2 ...	—	—	—	7.982	7.694	8.109	7.928
Means	8.348	8.903	7.928	8.714	8.311	8.193	

Yield of control : 6.152 tons per acre

L. S. D. @ 5% = $\pm$ 1.532 tons per acre

L. S. D. @ 1% = $\pm$ 2.191 tons per acre

Analysis of the yield figures has shown that nitrogen and phosphate combined and phosphate and potash combined gave positive responses whilst nitrogen and potash combined gave negative responses.

386. A spacing trial with the Queen variety at spacings of $1\frac{1}{2}' \times 1\frac{1}{4}' \times 4'$, $1\frac{1}{4}' \times 1\frac{1}{4}' \times 4'$, $1\frac{1}{4}' \times 1' \times 4'$ and $1\frac{1}{2}' \times 1' \times 4'$ was laid down in May, 1965. Sulphate of ammonia at 500 lbs, triple superphosphate and sulphate of potash, each at 300 lbs per acre, were applied split into four applications in February, June, August and December. Yields were poor and showed no difference between the various spacings.

Mangoes

387. The orchard was regularly circle weeded, fertilized and the inflorescences sprayed with phaltan to control anthracnose.

388. The orchard consists mainly of the 'Maison Rouge' variety which has proved itself an excellent stock as well as giving good quality fruit. The fruit from this orchard was kept for raising seedlings for use as stock or for sale as seedlings. A record crop of 82,000 fruit was obtained which is approximately 23,400 fruit per acre.

Pawpaw

389. In February, 60 pawpaw seedlings of the variety Wilcox were planted as a single row along the border of two fields 10' apart. Growth was satisfactory and flowering commenced in August.

MISCELLANEOUS FRUIT TREES

390. Four seedlings each of Custard apple and Bullock's Heart were planted in May.

MISCELLANEOUS EXPERIMENTS

Ginger

391. The 3rd factorial fertilizer experiment planted in December, 1965, was harvested in August. The crop received a basic dressing of ten tons per acre of farmyard manure. Nitrogen was applied at rates of zero, 40 and 80 lbs per acre on sulphate of ammonia, split into two equal applications, one at germination in January and the other two months later. Phosphate was applied at planting at rates of zero, 36 to 72 lbs of P₂O₅ per acre, as single superphosphate. Potash was applied at rates of zero, 50 and 100 lbs of K₂O per acre, as sulphate of potash, split into two equal applications, one at planting and the other at the time of second application of sulphate of ammonia.

392. A positive response was obtained to nitrogen and slight response with increasing applications of potash. There was no significant response to phosphate.

393. The yields of freshly harvested ginger in tons per acre were as follows:

		P0	P1	P2	K0	K1	K2	Means
N0	...	3.920	4.859	3.617	3.730	4.324	4.342	4.132
N1	...	4.057	2.988	3.564	3.255	3.594	3.760	3.536
N2	...	2.406	2.816	3.029	2.798	2.477	2.976	2.750
P0	...	—	—	—	2.732	4.128	3.522	3.461
P1	...	—	—	—	3.867	2.988	3.808	3.554
P2	...	—	—	—	3.184	3.279	3.748	3.403
Means	...	3.461	3.554	3.403	3.261	3.465	3.693	

Yield of control ; 2.229 tons per acre

L.S.D. @ 5% = $\pm$ 1.181 tons per acre

L.S.D. @ 1% = $\pm$ 1.634 tons per acre

Maize

394. A randomised block spacing and fertilizer trial on maize with four replications was laid down in April and the crop was harvested five months later. A basic dressing of 50 kgs per acre of both triple superphosphate and sulphate of potash was applied at planting while sulphate of ammonia was applied at the rate of 100 kgs per acre, either at planting as a single dressing (treatment t₁) or as a split application in equal amounts at planting and when the plants were at knee height some six weeks later (treatment t₂).

The spacings used were as follows:

(a) 3' x 1' thinned to one plant per hole

(b) 3' x 1' thinned to two plants per hole

(c) 3' x 2' thinned to two plants per hole

(d) 3' x 9" thinned to one plant per hole

395. The yields of air dry grain were as follows:

Treatment	Average yield in tons per acre
at1	1.77
at2	1.77
bt1	1.77
bt2	1.69
ct1	1.43
ct2	1.33
dt1	1.77
dt2	1.53

L.S.D. @ 5% = $\pm$ 0.270 ton per acre

L.S.D. @ 1% = $\pm$ 0.386 ton per acre

396. The split application of nitrogen was beneficial. A spacing of 3'×2' appeared to depress yields.

Beans

397. The variety Victory was used in fertilizer trial, planted on the first of June, to test two levels each of NPK and farmyard manure at a spacing of 15"×15". The rates of application were zero and 40 lbs of nitrogen per acre and 80 lbs per acre each of phosphate and potash as P_2O_5 and K_2O and 15 tons per acre of farmyard manure. Harvesting took place from the 19th July to 11th August and yields were as follows:

<i>Treatments</i>	<i>Yield in Tons per acre</i>
N. P. FYM.	2.60
N. FYM.	2.28
P. K. FYM.	2.11
N. K. FYM.	2.08
N. P. K.	1.95
N. P. K. FYM.	1.80
P	1.71
FYM.	1.65
NP	1.65
P. K.	1.63
P. FYM.	1.60
N	1.56
N. K.	1.54
Control	1.43
K	1.28
K. FYM.	1.28
L.S.D. @ 5% = ± .233 ton per acre	
L.S.D. @ 1% = ± .322 ton per acre	

Onion

398. A variety trial, comprising 10 varieties, was sown in late May, transplanted a month later and harvested in early November. The yields were as follows:

<i>Variety</i>	<i>Yield in Tons per acre</i>
Hunter River White ...	13.33
Rowcliff Brown ...	12.59
Yellow Cape Flat ...	12.35
Early Grano ...	11.70
Hunter River Brown ...	11.02
Texas Grano ...	8.66
Red Creole ...	8.33
Bombay Red Round ...	6.57
Local Red ...	6.01
Bombay Large Red ...	5.70

Potato

399. A randomized block variety trial with four replicates was planted in May with the imported seed of the varieties Wheeler, Norin I, King George and Up to Date and with once grown seed of Pimpernel produced at Curepipe. The crop was regularly sprayed with Zineb and Maneb alternately, at 10 day intervals.

400. The crop was lifted three months later and the average yields were as follows:

<i>Variety</i>	<i>Yields in tons per acre</i>
Up to date	9.6
Wheeler	7.9
Norin I	6.4
King George	5.9
Pimpernel	5.8
L. S. D. @ 5% = ±	2.708 tons/acre
L. S. D. @ 1% = ±	3.895 tons/acre

Sunflower

401. A randomised block variety trial with four replicates was planted in March at a spacing of $3' \times 1\frac{1}{2}'$ with two plants per hole with the following varieties from the United States of America: T 56002, a rust resistant F hybrid, Peredovick (high oil content), Peredovick 15659, Smena VNIIMK 8931, VNIIMK 1646, Tenessei, and Tchernianka 66. As a result of poor and erratic germination, the trial was abandoned.

VEGETABLE SEED PRODUCTION

402. The following were planted for seed and the produce forwarded to Barkly experiment station: beans, peas, eggplant var. Rosita, chillies, coriander, pumpkin, luffa, and lettuce varieties mignonette, merveille des 4 saisons, Iceberg and Webbs Wonder.

OPEN DAY

403. The station was open to the public on 29th and 30th October. About 2,300 people visited the station.

AIRPORT SECTION

404. A fertilizer trial on Pangola grass was laid down in March with three rates of nitrogen, namely 0, 30 and 60 lbs per acre in the form of sulphate of ammonia, applied after each cut; three rates of phosphate plus potash mixed together namely 0, 50 and 100 lbs per acre of each, as P_2O_5 and K_2O in the form of triple superphosphate and sulphate of potash and applied either once annually in January or twice annually in January and May. The growth and stand of the grass have been good in spite of the drought that prevailed from September to November.

FODDER PRODUCTION

405. Four hundred and twenty-one tons of green fodder were supplied by the station to the Curepipe livestock breeding centre for feeding the animals.

CENTRAL EXPERIMENT STATION

Development

406. The development of the station was completed. All fields have been provided with access roads and overhead irrigation installations and the station has been completely fenced.

Citrus

407. The different kinds of citrus in the $2\frac{1}{2}$ acre grove were maintained. Fertilizers were applied to all plants according to their age; irrigation, both surface and overhead, spraying with Bordeaux mixture, cuprokyt, M/45, Zineb, Bidrin and Phosdrin were done as and when required.

408. Eleven year old Mandarin seedlings of the following introduced varieties from South Africa: Empress, Fagan, Djeroek Keproek Poenten and Kjeroek Garoet produced no fruit except for three plants of Fagan Mandarin which produced 26, 7 and 14 fruit respectively and two plants of Djeroek Keproek Poenten which produced 3 and 10 fruit respectively.

409. The plants of local Mandarin budded on Florida Rough Lemon, planted a year ago to replace vacancies occurring among Empress and Fagan mandarins, have made good growth. A couple of plants flowered and set fruit which were removed.

410. Eleven year old Marsh grapefruit, crown grafted on Florida Rough Lemon again produced fruits which dropped prematurely. The number of fruit per tree varied from nil to sixteen.

411. Out of twenty-two Java grapefruit seedlings, 11 years old, only seven produced a total of 196 fruit. Two plants of grafted Juddoo grapefruit, five years old, produced 259 fruit. The latter grapefruit, named after the owner of the original tree, is a prolific bearer of very acid fruit suitable for juice and marmalade.

412. Nine, eleven year old, Semineole Tangelos seedling produced 697 fruit compared with 2,575 fruit last year. Two, eleven year old, Mineole Tangelo seedlings produced slightly more fruit than last year. Twelve Mineole Tangelo budded on Florida Rough Lemon were planted among the seedling plants of the same variety.

413. Ten, eleven year old, Parson Brown oranges, crown grafted on Waterkloof sweet orange, gave a total yield of 1,768 fruit, individual yields varying from 39 to 317; in the preceding year, the highest yield of a single plant was 509. The quality of the fruit, compared with that of Parson Brown grafted on Florida Rough Lemon, seemed to be superior.

414. Six, eleven year old, Navel oranges, crown grafted on Florida Rough Lemon gave 77, 126, 213, 218, 321 fruit respectively, an average of 183 fruit per plant. Six Navel oranges crown grafted on local Mandarin produced 88, 95, 108, 113, 129 and 156 fruit respectively, an average of 115 fruit per tree.

415. For the first time, one of the few eleven year old Waterkloof Sweet orange seedlings came into bearing and produced 17 fruit. However, this plant, together with a couple of others, died as a result of damage by Cyclone *Denise*.

416. Seven, five year old, Navalencia oranges, budded on Florida Rough Lemon produced a total of 259 fruit, an average of 37 fruit per tree.

417. The yields of eleven year old Valencia and Parson Brown oranges, grafted on Florida Rough Lemon, in fertilizer trial plots is given below. Each plot consisted of four plants. To date, there has ben no significant difference between the treatments.

<i>Treatment Block</i>	<i>T₁</i>	<i>T₂</i>	<i>T₃</i>	<i>T₄</i>	<i>Total</i>	
1 ...	508	496	447	294	1,745	fruit
2 ...	415	473	442	421	1,751	do
3 ...	184	333	203	515	1,235	do
TOTAL ...	1,107	1,302	1,092	1,230	4,731	fruit
Mean per plot ...	369	434	362	410	394	do
Mean per plant ...	92	109	91	103	98	do

418. Similarly the yields of five year old Navel oranges budded on Citron galeux in plots of the fertilizer trial showed no significance due to treatment. Each plot had 4 plants.

<i>Treatment Block</i>	<i>T₁</i>	<i>T₂</i>	<i>T₃</i>	<i>T₄</i>	<i>Total</i>	
1 ...	174	244	219	240	777	fruit
2 ...	183	225	274	132	814	do
3 ...	113	250	111	164	638	do
TOTAL ...	470	619	604	536	2,229	fruit
Mean per plot ...	156	207	201	178	186	do
Mean per plant ...	39	52	50	45	47	do

419. Cyclone *Denise* blew down about 2,000 fruit. Soon after the cyclone, a severe attack of 'canker' occurred causing much damage, particularly to the fruit. There was also a high incidence of white fly attack and, in spite of repeated insecticidal sprays, control was difficult; overhead irrigation appeared to assist in reducing the attack. Fruit drop was high and most fruit was blemished by mites. Comparing the profuse flowering of oranges and tangelos with the fruit set, it would appear that the plants had suffered physiological disturbances, possibly the result of the cyclone.

420. Budwood from Djeroek Keprock Poenten Mandarin, Java Grapefruit. Semineole Tangelo, Mineole Tangelo were taken for propagation.

421. Navel oranges were the first to flower. Flowering was profuse in July and August as the fruit harvest had terminated earlier. Valencia and Parson Brown oranges, which carried fruit until September, started flowering when harvesting was completed.

Pineapple

422. Out of 3,018 Queen Victoria pineapple suckers planted in April, 1965, in double rows 2'×2'×3', seven hundred and sixty came into bearing. Harvesting commenced in December. Weeds, especially *Cynodon dactylon*, have been a serious problem.

Banana

423. The varietal collection was blown down by Cyclone *Denise*. Production had re-commenced by the end of the year.

Peach

424. Plants of the varieties Babcock, Florida Crawford, King Edward VII and Angel produced a few fruit which were attacked by fruit-fly. Eight varieties of peach were crown grafted on local peach root stock which had

been planted in February, 1965. Each of the following varieties was grafted on to five plants, Alexander Jewel, Hall's Yellow, Angel (B.E.S.), Teton de Venus, Babcock, Florida Crawford, Angel (C.E.S.) and King Edward VII.

Nectarine

425. A strain of Nectarine was crown grafted on three local peach root stocks; only one graft was successful.

Persimmons

426. Little progress can be reported on the five varieties of persimmons. They again showed dormancy in winter; leaves were shed during April to October. None of the plants fruited.

Apple

427. Shoots from the root stock of one of the two Tropical Beauty apples were allowed to grow to obtain cuttings for propagation of stock plants. The two plants produced 92 and 61 apples respectively but many were shed before maturity.

Pawpaw

428. Introductions of pawpaw have failed to thrive due to damage by successive cyclones and also to diseases such as soft rot of trunk and anthracnose. The varieties Wilcox, Reunion and a local variety were propagated.

Avocado

429. The sixteen varieties of Grafted Avocado, namely: Fuerte, Areu, Saison, Edranol, Lula, Linda, Itsanna, Fair Child, Colinson, Pavenoy, Peterson, Black Round, No. 10, Fairchild, Booth and Taylor, which were planted out last year, made good growth. One grafted plant of the variety Taylor died of root-rot; there were also some casualties from the same cause among the two year old seedlings.

Coffee

430. The five year old Kenya Arabica coffee variety K3 fruited. Twenty thousand berries were collected for plant propagation; the weight of 100 berries was about 200 gms. The yield of coffee obtained was 1348.5 lbs cherries or 221 lbs hulled dry coffee per acre. Samples were sent to the Tropical Products Institute for assessment of quality and commercial value. The report was encouraging and the commercial value was estimated to be 340 shs per cwt. Four different methods of pruning are under trial.

Grapes

431. The grape Citronelle, formerly known as Napoleon Chasselas was crown grafted on to two strains of Isabelle and on to Couderc; it is unable to grow properly at Reduit on its own roots.

Strawberry

432. The introduced varieties from Kenya namely Cambridge Rear-guard, 1-4, 1-8, 1-12, 1-16, 1-17 with the local small fruited variety were maintained; yields were very poor.

GRASS AND FODDER

433. A randomised block fertilizer trial with Elephant grass with four replications was planted in March to determine the effect of split application of the same rate of nitrogen, applied annually at the rate of 300 kgs of sulphate of ammonia per acre. The treatments were as follows:

T₁—50 kgs of sulphate of ammonia applied after each cut.

T₂—75 kgs of sulphate of ammonia applied four times per year in the last week of November, February, May and August.

T₃—150 kgs of sulphate of ammonia applied twice per year in the last week of February and August.

434. Plots were 1/33 acre; stem cuttings were planted in furrows 3' apart. 100 kgs of triple superphosphate were applied at planting. A uniformity cut was made after 70 days. Cuts were made at intervals of 40 to 55 days. The yields for each treatment for cuts made between June, 1965 and June, 1966 were as follows:

T ₁	= 134 tons green fodder per acre
T ₂	= 127 do
T ₃	= 108 do
L.S.D. at 5% = ± 17.6 tons per acre	

435. A spacing trial with selected *Setaria* from Curepipe was planted in three replicates in early April. 100 kgs of triple superphosphate per acre were applied at time of planting. A cut for uniformity of plots was made three months later. The average interval between cuts was 40-60 days. No significant difference was obtained. Yields per seven cuts for the year August 1965 to July 1966 were:

Spacing	Yield, tons of green fodder per acre
6" × 24"	92
12" × 12"	90
6" × 12"	83
12" × 24"	82
12" × 18"	81
12" × 36"	80
6" × 18"	76
6" × 30"	76
6" × 36"	76
12" × 30"	74

436. An interval of 73 days occurred following the uniformity cut and the first cut, because of drought. After each cut 100 lbs of sulphate of ammonia plus 100 lbs muriate of potash per acre was applied and there was also an annual application of 100 lbs of triple superphosphate per acre.

437. A randomised block variety trial with eleven types of grasses, planted in October, 1965, in four replicates failed to reach a 5 per cent level of significance.

438. Left over seeds of oats, var. Saia No. 2 plus Saia No. 4, were planted in July. Saia No. 2 was harvested after 69 days and yielded 15 tons per acre of green fodder. Saia No. 4 was harvested after 73 days and yielded 18.6 tons per acre of green fodder with the following analysis:

Variety	D.M. %	Protein % D.M.
Saia No. 2 ...	20.7	17.4
Saia No. 4 ...	14.6	20.6

439. Seeds of the four introduced varieties of *Leucaena glauca* (acacia) were supplied to growers.

440. A total of 196 tons of green fodder was supplied to the Division of Veterinary Services at Redit.

441. It has been observed that Selected Rhodes grass, *Chloris gayana*, grows well between rows, 10' apart, of introduced varieties of *Leucaena*. *Setaria splendida* has not shown any improvement, selected stools, propagated vegetatively, flower early and do not produce enough leaf.

442. *Cenchrus ciliaris*, Molopo strain, introduced from South Africa appears promising and drought resistant. It has been propagated for seed production.

443. *Eulchaena mexicana* was sown at the end of October, 1965 and seeds were collected in February. The plants were uprooted and the plot was left undisturbed. Two weeks later fallen seeds commenced to germinate and, after 51 days, 9.7 tons of green fodder per acre were harvested. This fodder species appears to require rain and/or irrigation.

444. *Brachiaria brizantha* produces little seed and vegetative propagation has had to be resorted to. At first, its habit of growth is erect later becoming prostrate. Fodder production was in the region of 36 tons per acre per annum.

445. *Brachiaria ruziziensis* also grew well in summer, yielding 47 tons per acre per annum. It appeared to be less resistant to drought than *Brachiaria brizantha*.

446. Of the different strains of *Eragrostis* introduced, the Ermelo strain No. 11871 appeared to be drought resistant, *E. Lehmanniana* made satisfactory growth but yields of forage were low.

447. Hybrid sorghum Hazera 610, grew satisfactorily but the seed was all eaten by birds.

448. Eight varieties of Rye grass were introduced but all varieties gave very poor growth. Kentucky blue grass was also introduced but failed to germinate.

449. Collection plots of the following grasses were maintained: *Andropogon gayana*, *Panicum Maximum* (sigor), *P. Maximum* var. *Makarikariense*, *P. Coloratum*, *P. maximum* var. *Trichoglune*, Fataque Madagascar, *Chloris gayana* (Endebess), *Chloris gayana* (Mbalrara), Giant Rhodes, *Setaria* (Bua River), *Tripsachum laxum*, *Brachiaria Brizantha*, *Brachiaria ruziziensis*, *Pangola Katambora*, Rhodes grass, *Cenchrus ciliaris mbalamba*, *C. ciliaris chippinga*, *C. ciliaris* (grassland); *C. ciliaris* (setingerus), *Paspalum notatum* (Bahia grass) and selected Rhodes grass.

450. The following grass and legume varieties were grown in introduction plots: *Eragrostis* sp., Green panic (*Panicum maximum* var. *trichoglune*), Blue panic (*Panicum antidotale*), Buffel grass (*Cenchrus ciliaris*), ordinary Sudan, Sweet Sudan (*Centrosema pubescens*), *Glycine javarica*, Townsville Lucerne, Louisiana White Clover, R. H. Lucerne, *Sorghum almun*.

451. Of these introductions, Green panic shows some promise, Blue panic being a slow grower by comparison. Buffel grass appeared to grow better when protected by a hedge. All strains of Sorghum were susceptible to rust. Lucerne African from Israel showed promise, yielding thirty-five tons of green fodder per acre per annum. *Desmodium intortum* does well in summer. Six hundred gms of *Glycine Javanica*, 1500 gms of *Centrosema*, 700 gms of Townsville Lucerne and 250 gms of *Desmodium intortum* were collected.

FOODCROPS

Manioc

452. Seventeen varieties of Cassava were planted in a variety trial in May, 1965 and 20 varieties were planted in collection plots in June of the same year. The crop failed to make satisfactory growth. Cyclone *Denise* in January probably caused the low yield. Collection plots of 17 varieties were replanted. Manioc de table yielded 3.8 tons per acre.

Groundnuts

453. The following groundnut varieties were planted for seed production:

from Israel	{	Beit Dagan		from U.S.A.	{	Tennessee
		N.C. 2				Spantex
		Virginia Bunch				Dixie Spanish
		Local Cabri				Starr
		Katamani 71				Argentine
		Manipintar				
		Makulu Red				
		Mgongo				

Maize

454. A variety trial of 5 varieties of hybrid maize from Israel compared with local maize planted in October, 1965. Yields were generally low but the superior yielding qualities of certain of the hybrids was amply demonstrated.

Variety		Yield of air dry grain in lbs per acre
(1) H.M. Neveh Year	... 44	1,757
(2)	... 157	1,382
(3)	... 22	1,320
(4)	... 160	1,093
(5)	... 170	1,011
Local Maize	... —	965

L.S.D. @ 5 % = 477 lbs per acre

455. A randomised block spacing trial with four replicates, on local maize with applications of 100 kgs of sulphate of ammonia at planting or in split application of equal amounts at planting and when the maize was at knee height gave no significant difference between treatments.

Potato

456. The varieties Wheeler, Pimpernel, King George, Up to Date and Norin were planted in randomised blocks with four replicates at a spacing of 24" x 18". Two hundred kgs of sulphate of ammonia and 150 kgs of sulphate of potash per acre were applied and the plots were sprayed at weekly intervals with Zineb plus M/45 against blight. The trial was laid down on a field which had been under Rhodes grass continuously for four years. The incidence of bacterial wilt was slight but that of blight was so heavy that the

crop had to be harvested prematurely and abandoned. It would appear that potatoes following a long period under grass markedly reduced the high incidence of bacterial wilt normally experienced at Reduit.

457. The South African potato varieties 833/7, 853/1, A700/2 and 933/21 sent for trial by the South African Potato Board were planted in two fields with five replicates in each. None exhibited resistance to bacterial wilt and, as a result, yields were negligible.

458. In December, five varieties of potatoes were planted with a view to determining yields from a summer crop.

Beans

459. A 3³ factorial fertilizer trial was planted in March with a single replication on Victory bean in three blocks of nine plots each at the following rates:

N=0, 20, 40 lbs/acre

P=0, 40, 80 lbs/acre

K=0, 40, 80 lbs/acre

460. The main effects and interactions were:

	Totals		lbs/acre		Interaction		
	Linear response	Curvature	Linear response	Curvature	Totals	lbs/acre	
N	...	0.12	5.5	26.8	NP	1.85	128.2
P	...	20.66	954.5	528.5	NK	0.07	4.9
K	...	15.65	723	1264.5	PK	8.95	620.2
S.E.	...	± 7.3	± 152.3	± 263	S.E.	± 5.96	± 188

461. The linear responses of P and K, the quadratic response of K and the interaction PK were significant.

SEED PRODUCTION

462. The following vegetables were grown for seed: brede de chine, bocklah, salsify, leeks, carrots, beetroot, petsai, rave, calabash (Natal), cucumber (local), squash and peas.

LA FERME

463. At La Ferme, the established plots of Pangola grass and the observation plots of various grasses were maintained. Sulphate of ammonia and basic slag at the respective rates of 100 lbs and 50 lbs per acre per year were applied to nine acres of grass.

464. In February, about twenty tons of fodder were supplied to 125 cowkeepers of Palma and Bambous. In April, a further thirty-seven tons were supplied to cowkeepers.

465. Firebreaks were established around the periphery of the cultivated areas. Further clearing of land as well as planting of Pangola and other grasses, such as Slender guinea, Rhodes grass, Elephant grass, *Setaria*, *Cenchrus* sp., *Brachiaria* sp. was continued. Establishment was seriously hampered by prolonged periods of drought.

466. The introduced acacia varieties were also planted in observation plots as well as new species of grass and fodder. The following were sown in observation plots: Ordinary and Sweet Sudan, H.R. Lucerne, *Centrosema*, *Glycine Javanica*, Townsville Lucerne, Blue panic, Sorghum (Hazera).

PALMAR

Onions

467. At Palmar, onion sets were raised in March for Barkly experiment station. A variety trial was laid down with the following varieties:

Bombay Large Red (improved).

Early Yellow Cape Flat.

Hunter River Brown.

Red Creole.

Yellow Bermuda.

Early Grano.

Rowcliff Brown.

Texas Grano.

Hunter River White.

468. The trial suffered from lack of water. Yields were very low.

GRASS

469. The 60 acres of Pangola grass established on coral sand were maintained. Grazing had to be discontinued as the Pangola grass in many paddocks was being destroyed by overgrazing. A complete compound fertilizer 12:12:17:2 at the rate of 150 lbs per acre was applied to some paddocks.

470. Seeds of *Cenchrus ciliaris*, Molopo strain, were sown in a couple of plots on sandy soils. Growth was satisfactory. This grass was also tried in a small plot on the brown soils and results were encouraging.

471. *Brachiaria brizantha*, Ceylon, was sown on both the sandy and brown soils. On sandy soil, *Brachiaria* has almost failed to establish itself whereas on the brown soils it has taken a long time to do so.

472. In addition, observation trials were carried out with *Eragrostis curvula*, Rhodes grass, Bahia grass (Pensacola strain), *Panicum* sp. Sorghum, clovers, lucerne, *Glycine Javanica*, *Centrosema*, *Desmodium intortum* and lucerne African.

473. The walling of four paddocks was completed. There has been considerable regeneration of self sown acacia in the walled paddocks, in the absence of grazing.

474. One thousand filao seedlings were planted in double rows at a spacing of 15' by 15' on each side of main road leading to Belle Mare. It is proposed to continue planting filao seedlings along fence lines to serve as live fence posts.

PLANT INTRODUCTION

475. The following potato varieties were introduced from Northern Ireland: Arran Consul, Alpha, Ulster Torch, Ulster Ranger, Arran Banner and Dr. Mc Intosh; from Norway, two tons of King George; through the Agricultural Marketing Board: Wheeler, Up to Date, Pimpernel, Norin I and King George; from South Africa: 833/7, 853/1, A700/2 and 931/21.

476. Seeds of various onion varieties were introduced from the Kirchoff Co. of Johannesburg: Yellow Bermuda, Cape Flat and Texas Grano; from Yates of Australia: Early grano, Rowcliff: Brown, Hunter River Brown and Hunter River White; from Kirchoff, East Africa: Bombay Large Red and Red Creole.

477. Tomato seeds were introduced from Marseilles and the following varieties from Kirchoff, namely Roma, Valiant, Rudgers, Oxheart and Ponderosa. From U.S.A. the following vegetable seeds were introduced, namely Eggplant Florida Market 10, Pepper seed California, Wonder 300 and Pepper seed Florida Giant.

478. From Israel, the following maize and groundnut varieties were introduced, namely Maize Hybrids NY 157, NY 160, NY 170, NY 22 and Virginia Bunch and N.C. 2 groundnuts.

479. The following Sorghums were introduced from Australia, *Sorghum almun* CPI 28626, CPI 28627, CPI 28628, N-625 and CPI 12019.

480. Additional coffee varieties were introduced from Kenya namely S.L. 28 and S.L. 34 and an Arabica coffee from Oyster Bay, Rodrigues.

481. Tabebuia and Cleopatra Mandarin were received from Trinidad. Seven varieties of tobacco were introduced from the United States Department of Agriculture namely Maryland Rg and Pas H, Havanna 142, Burley 2, Kentucky 9, Medole and Kentucky 151.

482. Additional Malayan Dwarf coconuts were introduced, 286 bags of seed were sent to Barkly experiment station and another consignment of 20,000 seed nuts were sent to Rodrigues.

483. Seeds of Brinjal Cipaye from Petite Rivière, coeur de boeuf from Beau Champ and pawpaw from Rivière du Rempart were collected for trial and comparison.

484. Sunflower seeds of the varieties 16-46, B 65-40, Peredovik, locally grown, obtained from Réunion and Tamarin Sugar Estates were partly sent to Rodrigues and partly stored at Barkly experiment station.

485. Rice seeds from Mare Choisy were bulked at Royal Botanical Gardens together with Pakistan seed from the quarantine station.

BARKLY EXPERIMENT STATION

Development

486. The seed store was enlarged by 11,000 cubic feet and will be air-conditioned next year. The seed testing laboratory was extended together with the main and tools stores. The construction of a new seed and plant sales room was commenced. Some 20,000 sq. ft. of station roads were tar sealed as well as a car park of 1,500 sq. ft.

Seed Production

487. Some 26,700 lbs of seed were processed during the year. The area devoted to seed production was about twenty-five acres at Barkly. Conditions for seed production were unfavourable during certain months of the year especially in the dry months of April and May, when there was an acute shortage of irrigation water.

488. The value of plants and seeds sold to the public, including those issued free to Government institutions, for the last three years were as follows:

			1964	1965	1966
			Rs	Rs	Rs
Sale of seeds	...	...	34,727.91	36,849.81	36,864.28
Sale of plants	...	...	30,184.06	34,684.61	35,239.50
TOTAL	...	...	64,911.97	71,534.42	72,103.78

Citrus

489. Over 5,000 rough lemon stocks were successfully budded or grafted mainly with Washington Naval, Navalencia, Parsons Brown, Pineapple and Valencia oranges, the local mandarin and Juddoo grapefruit.

490. Two varieties of mandarin, Zanzibar and Off King from Réunion Island, one lemon variety, 'Citron d'Assam' and one local citrus found on Highlands estate were added to the station's collection. Small numbers of the latter citrus as well as the Mineole and Seminole tangelos, the Waterkloof Sweet Orange and the mandarin varieties Empress, Fagan, Djeroet Keprok Poenten and Djerock Garoet were produced for planting on Departmental stations.

Coconuts

491. Most of the seedlings obtained from the previous year's sowing of 5,000 imported Malayan Dwarf coconuts were sold. Of some 10,000 seedlings imported during the year, 8,400 were sown at Barkly and the remainder at Abercrombie.

Litchi

492. The litchi orchard bore well, probably on account of favourable climatic conditions. The yield was estimated at well over 150,000 fruit which were sold by auction and realised Rs 3,213.

OTHER ORCHARD CROPS

493. The small peach orchard was supplied. A fair number of fruit was harvested which were badly attacked by fruit flies in spite of regular spraying.

494. The table grape variety 'Citronelle' was grafted *in situ* on three different stocks, Couderc 13, Isabelle Vacoas and Isabelle B.E.S. (Vignobles locales) in small observation plots for comparison with Citronelle plants on their own roots. In general, the grafted plants have shown greater vigour.

495. Several mango varieties were propagated to complete the collection of varieties at the Richelieu experiment station. Flowering was profuse but the fruit set was very poor.

496. The pawpaw variety 'Nortus Gold', introduced from South Africa was planted out. Pawpaw seedlings of the Wilcox (Hawaii) variety were planted out and distributed to other stations.

ABERCROMBIE NURSERY

Grapes

497. The grape variety, Napoleon Chasselas, renamed Citronelle, as a result of correspondence with the Services Agricoles, Réunion, has proved to be a good table variety both as regards yield and quality. However, its development on its own roots is poor save at Abercrombie. Citronelle was grafted on stocks of Couderc 13, Isabelle Barkly and Isabelle Vacoas with a view to determining whether this would result in improving the performance of Citronelle elsewhere on the island.

Mangoes

498. A very good crop of mangoes of the varieties Auguste, Aristide, Rosat, Eugenie and Maison Rouge was obtained. Control of insects and fungus diseases was achieved by the use of Bidrin at monthly intervals and Phaltan at 10-day intervals as soon as flowering commenced. The varieties Divine, Sunder Shaw and Elise show promise and are also being propagated.

Citrus

499. To facilitate sale to the public, citrus is being propagated on the station and will be available next year. New varieties of mandarins such as Dancy, Wilkins Round and Wilkins Flat will be available in limited quantities.

Coconuts

500. All three varieties of Malayan Dwarf coconuts were sown and will be available for sale next year.

ROYAL BOTANICAL GARDENS

501. The nursery provided plants for sale to the public at both Abercrombie Nursery and Barkly Station. Propagation was intensified especially of citrus and mango. The litchi crop was sold by auction for Rs 600.

502. Two varieties of rice, one from Pakistan and a local variety were planted on one quarter of an acre of marshy land towards the end of the year for seed production.

503. Two filter ponds, designed to filter off Tilapia eggs and fingerlings, which damage the water lilies, were constructed as well as a new tortoise pen and a pond for the breeding of fresh water lobster.

504. The general maintenance of the gardens was continued as was the identification of unknown plants by the Mauritius Herbarium, which is nearing completion. 155,000 visitors were estimated to have visited the gardens during the course of the year.

BOIS MARCHAND

505. Approximately ten acres of land were planted under Pangola. Twelve acres were cleared and planting under Pangola had commenced at the end of the year.

506. The potato variety King George from Norway was tried on a small plot. Owing to lack of rainfall and the absence of irrigation facilities, the yield was only $1\frac{1}{2}$ tons per acre.

RICHELIEU EXPERIMENT STATION

Development

507. An irrigation reservoir with a capacity of 180,000 cu. ft. was constructed on an half acre of land, adjoining the La Ferme main supply canal, acquired from Chebel Estate. The reservoir is an irregular quadrilateral with sides of 78, 130, 65 and 169 feet, a surface area of 12,000 ft. and a depth of 15 ft. The walls have been built of reinforced concrete, 8" thick, buttressed at 13 ft. intervals, with footings 5 ft. wide. The floor is of 3" thick concrete. The irrigation water supply of 2 cusecs from La Ferme Canal enters through a V-notch into a concrete canal which leads to either of two silt ponds $13' \times 10' \times 7'$ deep before entering the reservoir through 10" outlets. The water leaves the reservoir through a 10" steel pipe fitted with a valve and thence through 5,000 ft. of 10" asbestos cement pipe, class C, to the old main reservoir of the station. The water passes through a vertical brass sieve, $2\frac{1}{2}$ ft. diameter by 5 ft. high situated at the bottom of the pond before entering the 10" steel discharge pipe. The water in the asbestos main enters the station with a head of 110 feet. Construction commenced in January and was completed in December.

508. The installation of the 10" asbestos cement main was started in January. The distance between the reservoir and the station boundary was 2,200 feet, a further 2,700 feet of main had to be laid to connect with the old main reservoir. The asbestos cement pipes were laid in the bottom of a 3 ft. deep trench on top of a 2" layer of sieved soil, the pipes were joined with Kaltite asbestos joints and were covered with sieved soil to a depth of 8", coarser material being used to complete the filling of the trench. The 10" asbestos main was linked with the old 6" cast iron main, serving the lower part of the station, and an 8" pressure maintaining valve was fitted at the end of the 10" main, just before it enters the old reservoir.

509. A 10" valve was fitted where the 10" main enters the station, followed by an 8" Woltman water meter for measuring all irrigation water reaching the station. Three sets of 6" valves were installed for tapping water from the 10" main to irrigate the 40-acre area which was reclaimed last year. Each set consists of two valves, one on each side of a main road, so that the 6" aluminium sublaterals will not impede the road traffic. The portable aluminium irrigation equipment consists of 6" sublaterals with 3" valves at 150 ft. intervals. The water enters the 3" laterals from the 3" valves through elbow strainers. Sprinklers No. 233/92/23, fitted with 4 mm. nozzles, are spaced at 50 ft. intervals along the lateral giving a rate of application of 4.5 mm./hr. at a pressure of $2\frac{1}{2}$ atmospheres, equivalent to an application of two inches per acre over a period of 12 hours. By linking the 10" main to the former 6" cast iron main, the latter is under a head of over 4.7 atmospheres. It is now possible to carry out overhead irrigation throughout the station without the aid of pumps. It is intended to replace gradually the Sigmund system with R₂ rainers by the No. 233/92/23 or similar low-

medium pressure sprinklers, as rates of application of the former system, namely 8 mm. to 12 mm. per hour, are too high for the red clayey soils of Richelieu.

Tobacco

510. The use of methyl bromide for the sterilisation of seed beds was continued at Richelieu and Pamplémousses stations. A four year rotation is no longer necessary for seed beds; a permanent nursery of quarter of an acre is all that is now required provided it is treated with methyl bromide before sowing. The beds were subsequently used for sowing other crops, such as onion seed, with very good results. The use of methyl bromide for the treatment of seed beds by tobacco growers is spreading. Control of the weeds, chiendent, *Cynodon dactylon* and onion grass, *Gyperus rotundus* and of soil pests and diseases has been good in areas sterilized with methyl bromide.

Release of new varieties

511. Of the varieties bred at the station from seed introduced from the United States and grown by tobacco planters, the variety N.C. 95 has given the best results. N.C. 95 has shown a considerable resistance to soil diseases, including Black Shank, Granville Wilt and Root Knot and has given fair yields of good quality leaf. It is the first variety released by the station for commercial planting, showing high resistance to nematodes. It has been recommended for planting where tobacco crops are to be planted on second or third year land.

512. The three new Burley varieties, 11A 11B and 37, although showing high resistance to soil diseases and giving fair yields of good quality leaf have not found favour with planters producing air-cured tobacco. The Burleys flower about two months after planting and the harvesting of the leaves is completed in another two months. The average yield obtained by the air curers over the last three years was around 1,300 lbs per acre. The quality of the leaf is much superior to that of the variety it was intended to replace, namely Amarello, which yields, on average one ton per acre in seven to nine months. Amarello can be established by watering in dry weather and, once established, the plants will wait for the rains to put on growth. The majority of Amarello will not come into flower before 50 leaves or more have developed. If the weather becomes too dry, growth will stop and be resumed with the next good shower of rain, after which they will continue normal growth. For these reasons growers prefer Amarello to the better quality Burleys in areas which may experience long periods of drought and where no irrigation water is available, namely in the Pamplémousses, Rivière du Rempart and Flacq districts. It is unfortunate that the consumer appears to prefer Virginian tobacco to Amarello.

Seed Beds

513. The tobacco nursery is now situated at a permanent site, as a result of the use of methyl bromide for sterilization; treatment only takes forty-eight hours, compared with weeks, when using other methods. The advantages of the speed of sterilisation was demonstrated towards the end of the year, when the station was able to produce a large number of seedlings

within four weeks for planters, to enable them to plant a late crop of Amarello required urgently, as a result of a shortage of stocks arising from a change in excise duty, interfering with consumption trends.

514. An experiment was carried out in the seed beds using compost for surfacing the beds compared with the standard method of surfacing with farmyard manure. Mature compost, with a carbon/nitrogen ratio of 15:1 produced from town refuse, was applied as a layer about 1" thick on the surface of the beds. A similar amount of farmyard manure was used. After sterilisation of the beds with methyl bromide and an application of 1 kg of complete fertilizer, 15:15:15, per bed of 100 sq. ft., the beds were sown and watered with sprinklers. The compost gave a finer, more even surface than the farmyard manure, resulting in a much more even stand; the results were equally good with both Burley and Virginian varieties.

Hybrids

515. Work was continued on the improvement of varieties for resistance to disease as well as yield and quality. Considerable hybrid vigour was shown by the F_1 of N.C. 95 $\times$ the Virginian varieties. The N.C. 95 is highly resistant to root knot nematodes.

Fields

516. At Richelieu, the supply of irrigation from La Ferme reservoir was cut down severely over long periods owing to drought conditions which prevailed at the beginning and at the end of the year. The tobacco planting programme was accordingly reduced to seed production and breeding plots plus a compost experiment, in the first half of the year and to breeding only in the last quarter. At Pamplémousses station a 3 acre field was planted in April with Virginian varieties.

517. A randomized block compost experiment was laid down with four replications and the following six treatments:

- t_1 —compost only at the rate of 8 tons per acre
- t_2 —as for t_1 plus a complete fertilizer mixture 10: 28 : 14 at the rate of 220 lbs per acre.
- t_3 —farmyard manure only at the rate of 15 tons per acre
- t_4 —as for t_3 plus the complete fertilizer mixture as in t_2
- t_5 —the fertilizer mixture as in t_2
- t_6 —control

The compost from town refuse, supplied by a Port Louis firm, was not mature at the time of planting in April; the chemical analysis showed a very high carbon nitrogen ratio of 20:1 and a moisture content of 25 per cent. The rates of application of compost and farmyard manure were calculated to supply the same amount of total nitrogen per acre.

518. The growth of the tobacco plants was stunted in the control plots as well as the plots receiving compost only. Even the plots receiving complete fertilizers, in addition to the compost, failed to make normal growth. Symptoms of nitrogen deficiency were evident from the start. At the time of flowering, there was evidence of a sudden release of nitrogen. Fertilizers only produced leaves which were light coloured but lacking in body and quality. The mixture of fertilizers and manure resulted in too rank a growth, indicating that the quantity of manure applied was much too high. Previous

experiments have shown that better results are obtained with half the quantity of farmyard manure in addition to the fertilizers. The actual weight of cured leaf obtained from three prinnings are shown in the following table:

	<i>lb per acre</i>
	± 24.6
Compost only (8 tons per acre)	61
Compost + complete fertilizers	227
Farmyard manure only (15 tons per acre) ...	300
Farmyard manure + complete fertilizers ...	367
Complete fertilizers only (220 lb/acre of 10:28:14)	294
Control no compost, farmyard manure or fertilizers)	44
Mean	215
	± 10.0

Significant difference @ 5% point between treatments ± 74

519. The two varieties of Oriental tobacco, Samsoun and Soluk are improving as a result of repeated selections in the Black Shank resistance breeding plots. These plots are planted under tobacco twice a year, in March and September; new introductions usually suffer heavily from Black Shank.

520. All imported seed is sown and taken to maturity in the quarantine greenhouse at Reduit. The varieties imported and raised this year included the Orinoco variety, Kutsaga Mammoth from Rhodesia, two varieties of firecured Kentucky 151 and Burley 2, three varieties of cigar Rg, Havana and Pennsylvania from U.S.A. The variety Kutsaga Mammoth was found to be highly susceptible to Black Shank and failed to show the mammoth character at Richelieu. Of the American varieties, Rg is resistant to Black Shank disease.

Seed Production

521. The station continued to be the sole producer of tobacco seed which is supplied to the Tobacco Board for distribution to growers free of charge.

522. The tobacco seed was produced from plots of selected strains of the commercial varieties. Seed is also produced from especially good fields of tobacco growers. The flower heads of all selected plants are bagged, with grey calico bags, to ensure self pollination. All plants which show subsequent symptoms of disease are discarded. As only some 10 to 15 kilogrammes of seed are required each year, it is possible to apply strict selection criteria to seed bearers. At Richelieu, at harvest, each plant is uprooted and its roots are examined for infection by Black Shank and/or nematodes. The variety NC 95 continued to give a very high percentage of plants with healthy roots. The pods from the healthy plants are bulked separately. The pods are allowed to dry in the sun in shallow metal trays, they are then shelled by hand, the seed is sieved through standard sieves, then cleaned through the seed separator and well dried before storage. Prior to distribution to tobacco growers, the seeds are treated in a one per thousand solution of silver nitrate for 15 minutes and dried. The station carries ample stocks of seeds of all varieties.

Curing

523. Towards the end of 1965, the Tobacco Board had approved the use of oil curing units by tobacco planters after extensive tests with a "Nu-Oilmatic" unit at Richelieu in 1964 and 1965. The main object of the experiment was to find alternative fuels to firewood, which was in short supply. It became evident that the oil firing system was in many ways more advantageous than the older system of flues and firewood.

524. During the first months of the year, all the 'Nu-Oilmatic' units, imported from Rhodesia by a local firm, were sold out and local fabrication of units was commenced. Another firm imported 'Anchor' units from U.S.A. Both units are fundamentally similar and were retailed to planters at Rs 2,200 per unit. Both were supplied with interchangeable fuel jets delivering $1\frac{1}{2}$ to 2 imp. gallons of fuel oil No. 2 per hour. There is also a 'Major' model of the Anchor, for which 4 jets are available, the largest delivering up to $3\frac{1}{2}$ imp. gals. per hour.

525. A 'Major Anchor' unit was installed in a barn at Richelieu for tests. Growers' tobacco leaf was brought in for curing in a 16'x16'x9 tiers high barn. The growers were charged with the actual cost of curing, which averaged Rs 101 per cure producing over 450 kgs tobacco. The cost of curing similar quantities of tobacco with firewood in barns fitted with flues is around Rs 200, and using propane gas and the 'Gastobac' unit the cost is over Rs 350.

526. The 'Gastobac' unit was used by many growers, particularly in areas where an electric supply is not available for running the motors of the oil curing units. Growers appear to be very satisfied with gas curing, especially those who are producing the more expensive grades of leaf.

527. All leaf produced at the station was sold to the Tobacco Board. 579 kgs of Virginia of a gross value of Rs 3,211.82 and 122 kgs of air cured worth Rs 323.50 was sold from Richelieu and 1,284 kgs of Virginia of a value of Rs 8,975 was sold from Pamplémousses.

Potatoes

528. The programme of potato planting was also curtailed owing to a shortage of irrigation water. Only two experiments were planted, namely a variety trial and a compost experiment.

529. The variety trial was planted with five varieties of seeds imported from Ireland, namely Arran Consul, Alpha, Ulster Torch, Arran Banner, Dr. Mc Intosh and with seeds of the variety King George imported from Norway. Seeds imported from Ireland and Scotland usually arrive in poor condition *via* the Cape. The seeds from Norway were shipped in ventilated or refrigerated holds of a Norwegian vessel and arrived in good condition. The seeds of the Irish varieties were severely damaged by soft rot when they arrived at Richelieu and germination was poor as a result. The variety Dr. Mc Intosh did not sprout well with the result that the stand in the field was very poor. The potato varieties were planted out in mid-April in

randomised blocks with four replications. A severe attack of blight occurred in the latter part of June, damaging all varieties, particularly King George. The experiment was harvested in early July with the following results:

			Yield of Potatoes Tons per acre ±0.39	Size of Potatoes	
				Above 2"	1½" to 2"
				%	%
Arran Consul	...	5.54	76	20	
Alpha	...	3.29	76	20	
Ulster Torch	...	3.48	46	37	
Dr. Mc Intosh	...	0.21	43	43	
Arran Banner	...	5.52	54	36	
King George	...	4.71	56	35	
Mean			3.79		
			±0.16		

530. The compost experiment with potatoes was carried out on the same lines as the compost experiment with tobacco, save that the application of fertilizers with potatoes was a mixture of 440 lb of sulphate of ammonia, 220 lb of triple superphosphate and 220 lb of sulphate of potash per acre. A randomised block experiment with four replications was planted out in early May using Norway seed of King George. The plots that received compost only and the control plots receiving neither compost, farmyard manure nor fertilizers were yellowish and stunted; the plots treated with fertilizers only or with compost in addition to fertilizers were very similar, with satisfactory growth but with leaves rather light in colour; the plots that received either farmyard manure only or farmyard manure plus fertilizers seemed to make best growth, with leaves of a dark green colour. Unfortunately a blight attack in July affected the plants considerably. Yields were as following, potatoes having been harvested in early August:

							Yield
							Tons per acre
							± 0.26
Compost only (8 tons per acre)	...	...	...	...	...	...	1.61
Compost + complete fertilizers	...	...	...	...	...	...	3.63
Farmyard manure only (15 tons per acre)	...	...	...	...	...	...	3.75
Farmyard manure + complete fertilizers	...	...	...	...	...	...	3.64
Complete fertilizers 880 lb/acre of 10 : 11 : 12	...	...	...	...	...	...	3.72
Control (no compost, farmyard manure or fertilizers)	...	...	...	...	...	...	1.56
mean	...	...	...	...	...	...	2.99
							± 0.10
Significant difference @ 5% points between treatments							± 0.78

531. As in the case of tobacco experiment, the compost supplied was fresh. Mature compost, prepared from town refuse, is now available on the local market and should give better results.

Maize

532. Seed of hybrid maize from Israel was obtained at the end of 1965 for composite trials with local maize which is a mixture of yellow flint and dent resulting from distant introductions. Local seed is obtained by open pollination and little, if any, selection is carried out.

533. A variety trial in randomised blocks with four replicates was planted at the end of September with five hybrid varieties from Israel and the local variety. Yields were as follows:

Variety				Yields of grain in tons per acre	Crop cycle days
				± 0.16	
Nevch Yaar	160	double cross		1.80	105
" "	157	double cross		2.38	115
" "	22	single cross		2.83	125
" "	182	?		2.60	125
" "	170	Top cross		2.23	125
Local seed		Open pollinated variety		1.51	145
Mean				2.23	
				$\pm .065$	

Significant difference @ 5% point between varieties = 0.476

534. The Israel hybrid 160 was a dwarf type with slender leaves and stems; it appeared well suited for planting in interrows of ratoon canes from June to September.

Groundnuts

535. Three varieties of groundnuts from Israel and five varieties from the United States Department of Agriculture were obtained at the end of 1965 for trials. The Israel varieties were confectionery varieties whereas those from the U.S.A. were oil varieties. The varieties were planted out in observation plots at the end of 1965. All the varieties performed well with a cycle of about 4 months from planting to lifting. The local variety, Cabri, has the same crop cycle which makes it possible to grow groundnuts in virgin cane interrows. Three varieties imported from East Africa, namely Manipintar, Makulu Red Mgongo, although yielding well, have a crop cycle of over 5 months and are therefore not suited for planting in cane interrows. Most of the new varieties gave much higher yields than Cabri. In October, they were planted out in a variety trial.

536. Towards the end of September, 1965, an experiment on groundnuts in interrows of virgin cane was planted. The object of the experiment was to find out the yield of groundnuts that could be obtained from various methods of planting and also the effect of the groundnut planting on the sugar-cane crop. There were four replications of five treatments in a randomised block experiment. Two varieties of groundnuts namely Cabri and Manipintar were planted. The Cabri was lifted at the end of January while the Manipintar was not ready for lifting before the beginning of March. The sugar-cane made normal growth in all plots and had practically smothered the Manipintar by the middle of January. The results of the experiment are shown in the following table:

	Yields lbs per acre		Growth of sugarcane
	Cabri	Manipintar	
	± 168	± 235	
Double rows of groundnuts in every interrow	3370	3642	Competition with groundnuts
Double rows of groundnuts in alternative interrows	1570	1308	Some competition but less than preceding treatment
Single rows of groundnuts in every interrow	1990	1867	normal
Single rows of groundnuts in alternate interrows	1220	1181	normal
Control : no interrow planting of groundnuts	—	—	normal
Mean	2040	2125	
	± 84	± 117	

Sunflower

537. Nineteen varieties of sunflower were imported in 1965, seven from South Africa, three from Canada, eight from the United States Department of Agriculture and one from Israel. Observation on the first plantings of these varieties showed that all have a cycle of three months from planting to harvest, except the Israel variety which takes about 4 months. The first seeds obtained from the observation plots were used to plant the interrows of sugar cane fields, following the harvest of the canes from July to November. Immediately the harvesting of a cane field was completed, the thrash was lined in alternate interrows, leaving alternate interrows free of thrash. The fields were clean weeded, fertilizers were applied to the cane rows at the usual rates. The rows of sunflower were planted in each clean cane interrow, the spacing being $2\frac{1}{2}$ ft $\times$ 1 ft. The rows in which the sunflower were planted were thus at 1 ft. from the nearest cane row. A complete fertilizer 15:15:15 was applied to the sunflower at the rate of 100 lb/acre. The cane fields were watered as usual, namely either by surface irrigation allowing the water to flow in furrows in the centre of the clean interrow or by overhead irrigation. In both cases, the growth of the sunflower was rapid and the heads were dry and ready for harvesting within three months from sowing, except for the Israel variety which took 4 months. Yields were good and averaged 600 to 1,000 lbs per acre in the first plantings of July and August. Water was not available in sufficient quantities for watering the plantations made from September onwards and the plantations were stunted. Similar trials were carried out by some sugar estates with similar results.

538. In mid-October, 1965, an experiment of sunflower and groundnuts in interrows of virgin cane was planted. The sunflower variety was Smena and the groundnut variety was Cabri. The dry sunflower heads were harvested in mid January, 1966, and the groundnuts in mid February. The yield results are shown in the following table. The figures are on the low side as the experiment suffered from dry weather. The growth of sugar-cane did not seem to be affected by the different treatments:

	Yields lb per acre air-dried	
	Sunflower seed ± 88	Groundnuts in shell ± 40
Double rows of sunflower in one cane interrow alternating with double rows of groundnuts in another cane interrow	888	565
Double rows of sunflower in alternate cane interrows (alternate interrows uncropped)	784	—
Single rows sunflower in one cane interrow alternating with single rows of groundnuts in another interrow ...	569	297
Single rows of sunflower in every cane interrows	766	—
Single rows of sunflower in alternate cane interrows (alternate interrows uncropped)	514	—
Control : no interrow cropping ...	—	—
Mean	704 ± 39	431 ± 28

Significant difference @ 5% point between treatments $\pm 271 \pm 181$

Sugar-cane

539. 1108.06 metric tons of sugar cane were harvested. The average yield per acre which had been 42.7 tons in 1965, fell to about 30 tons owing to shortages of irrigation water.

Orchards

540. The citrus, mango and litchi orchards made fair progress. A sprinkler system of irrigation was obtained for watering the orchards. Insect pests, chiefly white fly and scale insects continued to be a problem in citrus. In the mango orchard, anthracnose on the inflorescences and fruit was the major problem. Fruit of Florida Rough Lemon were supplied to Barkly in sufficient number to satisfy the seed requirements for stock production. Additional Florida Rough Lemons were planted with the object of establishing a plentiful supply of seed.

Livestock

541. Some 16 heifers of the creole breed were kept at the Station as well as a bull. The in calf heifers were transferred to Curepipe Livestock Breeding Centre some three months before they were due to calve and were replaced by young heifers.

542. A small feeding experiment was carried out with the Rodrigues breed of chicken. The birds were divided into two lots of two dozen, one lot was fed with the standard poultry feed prepared by the Richelieu Livestock Feed Factory and the other with a special mixture prepared from scums. The scum feed was not satisfactory as the production of eggs was poor compared to the standard feed.

XVIII. Plant Pathology**TOBACCO**

543. Brown leaf spot of tobacco, *Alternaria longipes*, on 1st season Virginia, was severe in one plantation at Bon Air under very dry conditions and lack of irrigation which retarded colouring and harvesting. At Belle Rose, Flacq, the disease appeared but did not spread owing to cooler conditions and earlier harvesting. An Amarello plot, contiguous to the Virginia at Bon Air was also severely affected. Another Amarello plot at Solitude had some brown leaf spot, but most of the other regular Amarello plantations, some still standing at the end of the year, were remarkably free from brown spot as a result of the prolonged drought. Brown spot appeared at Etoile in mid-December with the onset of the summer rains, and no doubt some of the 2nd season Virginia, which was delayed owing to the drought, will be affected.

544. Brown spot was forecast for the second season Amarello, initiated as a result of the revised tariff on tobacco, which would carry over into the following year during the summer rains and cyclone season. Besides the certainty of being affected itself, the second Amarello crop would produce a considerable inoculum potential which would endanger the 1967, first season Virginia crop. The disease had appeared in an Amarello plantation at Massilia by December. The second season Amarello was also affected by black shank, *Phytophthora parasitica* var. *nicotianae*, which caused premature

yellowing of leaves and limited the growth of the plants, especially in pockets where the early summer rains caused some water-logging. Amarello which is usually grown in winter, normally escapes the combined conditions of high temperature and wet soil favourable to the disease and which reduce the resistance of tobacco to black shank. The first season Virginia, which goes through most of the cyclone season in disinfected seed beds and thus often escapes the wind damage which would affect a mature crop, also escapes black shank to which all our commercial varieties are appreciably resistant during the well established seasons.

545. Frog eye, *Cercospora nicotianae*, appeared on a few plantations but did not cause appreciable damage owing to unfavourable dry and cool conditions. Powdery mildew, *Erysiphe cichoracearum* was again severe on one first season Virginia plantation at Black River, where excessive overhead irrigation favoured rank growth. The disease was limited to small areas shaded by trees in a few other first season Virginia plantations, and was present only in small amount in second season Virginia at Etoile.

546. The tobacco virus complex was only severe on one Amarello plantation at Bon Air which was planted on a plot which had carried a tomato crop immediately before, whereas an adjoining Virginia plot, planted at the same time as the tomato, had been unaffected. Tobacco mosaic was present early in a second season Virginia plantation at Etoile, apparently due to infection in the seed beds which had been situated near the grower's residence. The whole plot was severely affected but the disease did not spread to adjoining plots of other growers. One or more small plots in residential areas had some mosaic, but most of the plantations where the recommendation of frequent washing of hands with soap and water in the seed beds and fields was followed were quite free from the disease.

547. Patches of plants affected with a previously reported condition causing chlorosis and necrosis of leaves, snappy stems and sudden death of well developed plants in small well delimited patches, occurred again at Etoile, but under quite dry conditions. A few plants affected with the same symptoms also occurred in a variety trial at Richelieu. The condition is therefore not likely to be caused by a leacheable factor in the fertilizer regime as was previously suspected. Similar conditions occurring in potato and tea seem to indicate some connection with certain weedkillers applied to the soil in the previous season.

TEA

548. Clonal cuttings in tiered rooting boxes failed to root and died towards the centre of the boxes, while cuttings towards the outside developed properly. The condition was apparently due to excessive shading by the upper tiers, which would also favour excess humidity and other unfavourable conditions. The rooting medium should also be changed or sterilised before being used for the next batch of cuttings.

549. The condition previously reported as tea yellows appeared again at Uplands in December in scattered groups of plants in one or two rows following the application of weedkiller (2 lb DCMU per acre) in the inter-rows in young producing tea. Vein yellowing, leaf drop, and occasional rapid

death of plants were observed, and may have been due to excessive spraying at these points by unskilled labour. Several cases of root splitting disease, *Armillaria mellea* and charcoal stump rot *Ustilina zonata* were reported in May. The disease spread from pieces of stumps, left deep in the soil during the preparation of the land.

POTATO

550. An investigation of the various cases of poor germination of potato tubers from several localities in April and May, revealed that bad germination and seed rot was the result of one or more of the following causes:

1. Improper method of seed treatment.
2. Excess dosages of fungicides as seed dips.
3. Improper manner of cutting tubers, e.g. across instead of longitudinally.
4. Bacterial soft rot.
5. Dry rot, *Fusarium* sp.
6. *Rhizoctonia solani* causing blackening of tips of young sprouts.
7. Bacterial wilt, *Pseudomonas solanacearum*.

Appropriate advice on seed treatments was given to the Extension Service. The standard 0.5 per cent Aretan dip for unsprouted tubers is phytotoxic to sprouted tubers, which should therefore be dipped in 0.25 per cent Captan. The prevalence of potato leaf roll virus on the variety King Gorge from South Africa was unusually high during the year. The identity of the virus was confirmed by aphid transmission on the indicator plant *Physalis floridana*. A survey of potato leaf roll was performed in June and July and the incidence of the disease was reckoned as follows: Crève Coeur 2 per cent, Ruisseau Rose 15 per cent, Mapou 20 per cent, L'Espérance 10 per cent, Beau Plateau 15 per cent, Arsenal 10 per cent, Massilia 35 per cent, La Chaumière 20 per cent, Plaisance 15 per cent, Trianon 5 per cent. The suppliers of King George seed, the potato Board of South Africa were informed of the high incidence of the apparently seed-borne leaf roll.

551. Symptoms of potato virus Y, but with an incidence of less than 1 per cent were observed on potato variety Wheeler from Japan. Potato virus X and Y, and hopper burn were very common on Up-to-date and Pimpernel varieties in most localities.

552. Bacterial wilt, *Pseudomonas solanacearum*, was severe on Pimpernel, Wheeler and Up-to-date in many localities, particularly at Beau Plan, Coromandel, Belle Vue Harel, Espérance and Chemin Grenier. The following observations on varietal resistance to bacterial wilt at Réduit were made in June.

Very susceptible	...	...	Pimpernel
Susceptible	...	...	Wheeler, Up-to-date
Less susceptible	...	...	King George, Norin (Japanese)

553. Potato late blight was not very severe during the winter months although some damage was caused to plantations at Coromandel and up country, particularly on the variety Up-to-date where leaves, stems and

tubers were affected. The following observations of resistance to late blight, compared to the standard variety King George were made at Richelieu experiment station under severe blight conditions in June:

Resistant	...	...	...	Ulster torch, Ulster Ranger, Alpha
Susceptible	...	...	...	Dr. Mc Intosh, Arran Consul
Very susceptible	...	...	...	Arran banner, King George

554. The main fungicide trials were performed at Trianon on the variety King George and at Tamarin on the variety Delaware under different climatic conditions. At Trianon, a latin square design with 16 plots and 4 replicates was used. The fungicides tested were M-45 at 2 lbs per 100 gal. water Difolatan at $1\frac{1}{2}$ lbs per 100 gal. water, Maneb at 2 lbs per 100 gal. water and Du Ter at 1 lb per 100 gal. water. Ten sprayings were carried out during July and August, sometimes at less than weekly intervals during extremely rainy periods. The crop was infected during late July and August. Mean yields, which showed no significance, were as follows:

				kgs
M-45	...	...	...	372
Difolatan	...	...	...	264
Maneb	...	...	...	$370\frac{1}{2}$
Du Ter	...	...	...	298

555. At Tamarin, a latin square of 25 plots with 5 replicates was laid down and the fungicides tested were Z M C 5, Difolatan, M-45, Maneb and Du Ter. Motorized sprayers were used and the dosages for a medium volume of 50 gal. per acre were: Z M C 5 ($1\frac{1}{2}$ lbs) Difolatan (2 lbs), M-45 (2 lbs), Maneb (2 lbs) and Du Ter ($\frac{3}{4}$ lb). 6 sprays were performed from August to September at about weekly intervals. Mean yields were as follows:

			kgs
Z M C 5	...	...	590
Difolatan	...	...	451
M-45	...	...	543
Maneb	...	...	563
Du Ter	...	...	509

556. Corky scab, *Streptomyces scabies* and powdery scab, *Spongospora subterranea*, were unusually common. The latter was worse and occurred in wet soil during rainy periods. Japanese varieties were particularly susceptible. In December, potato plantations of the variety Delaware were infected with *Alternatia solani*, at Mapou, Arsenal, Constance and Rivière des Anguilles.

MAIZE

557. Both leaf blotch, *Helminthosporium turcicum*, and rust, *Puccinia polysora*, were severe in January and February at Flacq. Rust, *Puccinia polysora*, was particularly severe on recently introduced varieties during the summer months. In a fungicide trial at Flacq District Headquarters, both M-45 and Maneb were found to control leaf blotch and rust satisfactorily.

TOMATO

558. Grey mould, *Cladosporium fulvum*, was again observed in tomato plantations. Infection started in February at Morcellement St. André. Grey leaf spot, *Stemphylium solani*, was however the most prevalent disease and

caused serious damage in April. Fungicide trials were carried out at Mapou and Arsenal in an attempt to control both grey mould and *Stemphylium* leaf spot. At Mapou, the following yields were obtained with the different fungicide treatments:

M-45 (2 lbs per 100 gal. water)	...	...	99 lbs
Antracol (Zinc-Thiocarbamate) (2 lbs per 100 gal. water)	...	...	110 lbs
Control	...	...	83 lbs

At Arsenal, where grey mould was more severe, yields were as follows:

Maneb (2 lbs per 100 gal. water)	...	...	142 lbs
Antracol (2 lbs per 100 gal. water)	...	...	143 lbs
Control	...	...	163 lbs

GROUNDNUT

559. In a fungicide trial at Reduit, Brassicol 75 per cent wettable (Pentachloronitrobenzene) as a soil treatment, failed to control *Sclerotium rolfsii* wilt.

GARLIC AND LEEK

560. A fungicide trial at Reduit to control purple blotch, *Alternaria porri*, on leek and garlic with Difolatan, M-45 and Du Ter gave satisfactory disease control with all three fungicides.

EGGPLANT

561. Eggplant wilt, *Phomopsis vexans*, again caused severe damage to winter plantations. At Vacoas Demonstration Centre, 90 per cent infection was recorded. The variety Florida market introduced from the United States of America showed resistance to the disease.

BEAN

562. Bacterial wilt, *Pseudomonas solanacearum*, was common on local red and Market, a variety from Reunion, both of which have shown increased susceptibility to the disease over the past few years. A fungicide trial was laid down at the Vacoas Demonstration Centre for the control of white rot of plants and pods, *Sclerotinia sclerotium*, with Brassicol 75 and the control of angular leaf spot *Isariopsis griseoli* with M-45 and Difolatan. No results were obtained as the diseases were absent from all plots.

BRASSICAE AND LETTUCE

563. A fungicide trial was carried out at Vacoas Demonstration Centre with 2 applications of Brassicol 75 (Pentachloronitrobenzene) on lettuce at dosages of 5 gms per litre and 10 gms per litre, applied by watering can at fortnightly intervals, to control lettuce drop, *Sclerotinia sclerotium*. Mean yields of marketable lettuce heads were as follows:

Brassicol 75	5g/litre	...	...	157
"	10g/litre	...	...	148
Control	...	...	...	120

The disease was very severe, even on treated plots. Further trials on the timing of applications are required.

CARROT

564. Sclerotial disease, *Sclerotium rolfsii*, was for the first time severe on carrot at Barkly experiment station in August.

CUCURBITS

565. Cucumber anthracnose, *Colletotrichum lagenarium*, was observed at Flacq in January. In a fungicide trial performed at Flacq District Headquarters in February, M-45 controlled the disease satisfactorily. Another trial was carried out at Reduit with M-45 and Maneb. The following mean yield of marketable cucumbers were obtained:

M-45	...	...	25
Maneb	...	...	13
Control	...	...	14

566. Downy mildew *Pseudoperonospora cubensis*, was severe on pumpkin and melon from February to June. In a fungicide trial on melon carried out at Arsenal, both M-45 and Maneb controlled the disease satisfactorily. However, Maneb reduces the field of cucurbits and should not be used for these crops.

BANANA

567. Cercospora leaf spot, *Cercospora musae*, was again recorded at Reduit in May. Several cases of sunscorch on banana hands followed by infection with *Fusarium* sp. were reported during the summer months in the other localities. Banana disease, *Fusarium oxysporum* f. *cubense*, was destructive in a plantation of gingely variety at Mon Songe in March.

COCONUT

568. Coconut leaf blight and fruit drop, *Pestalotiopsis palmarum*, was common on Malayan Dwarfs, particularly at Palmar. Several cases of heart spots, *Fusarium* sp., were observed at Mon Songe, Plaisance and Palmar. Rotten areas develop on leaflets, at the bud stage, which dry out when the leaves expand giving them a ragged appearance. *Phomopsis* sp., a new record for Mauritius, occurred on both leaves and young fallen nuts.

GINGER

569. In May, severe leaf spotting occurred on ginger at Crève Coeur. The disease is still under investigation. A fungus species growing in association, *Phaeoseptoria* sp. has been identified by the Commonwealth Mycological Institute, but its relationship to the spots has not been fully established. Losses were estimated to be as high as 25 per cent. One grower successfully controlled the disease with M-45. Further fungicide trials will be required. At Reduit, a previously unrecorded *Cercospora* sp. was identified. The importance of the disease could not be properly assessed as the plantation was heavily infested with scale insects.

SUNFLOWER

570. Sunflower was a new host record for Bacterial wilt, *Pseudomonas blautnerum*, varietal susceptibility ranging from 9 to 58 per cent wilting in the field. Maturing plants seemed to show a greater resistance to the disease. Although differing in susceptibility, most of the recently introduced varieties were susceptible to rust, *Puccinia helianthi*; the varieties Jupiter, Commander and Armanvirec being more affected.

PAWPAW

571. Petiole leaf and fruit rot caused *Glomerella cingulata* was main disease of pawpaw.

MARKET AND STORAGE DISEASES

572. The marketing and storage of potatoes and onions, and the export of fruit and vegetables have brought in a new problem for Mauritius of post-harvest diseases. Research in fungicide treatment, packing and storage has been initiated.

PLANT INSPECTION AT CUSTOMS AND AIRPORT

573. 1,504 Plant Import Permits and 459 Phytosanitary Certificates of plants being exported were delivered at the Quarantine Office, Cerné Dock, Port Louis as well as 3,600 certificates of examination for articles being imported. Eight fumigation operations were performed at the fumigation plant at Fort George, and fees collected amounted to Rs 3,874. 106 ship arrivals and 631 plane arrivals were attended to.

COMMERCIAL EXPORTS

574. Besides the small private packages for relatives and friends abroad, the usual exports of ginger and a trial consignment of potatoes for Singapore, several commercial consignments of fruit, vegetables and flowers, mainly litchis (181 cartons), some mangoes (3 cartons), French beans (6 cartons) and Anthurium flowers (47 cartons) were examined and certified for despatch by air to London, Paris, etc. The Fruit Export Ordinance No. 20 of 1964 and the Regulations thereunder which provide only for the export of litchis, mangoes and pineapple by sea transport, are under review to provide a basis for transport by air and improved packing for a range of fruit, flowers and vegetables.

PLANT QUARANTINE

575. The following plants were grown under quarantine:

From seed to seed

Tobacco: the varieties Rg, Kentucky 151, P.A.S.M., Madeira, Havana 142, Burley 2 from the United States of America and Kutsaga Mammoth.

Sunflower: Hazera Improved from Israel was in quarantine for two months up to flowering after which it was moved outside for pollination.

Vegetative material: 3 citrus varieties from Sudan.

Potatoes: the potato variety Grana from Australia, which again showed necrotic spotting of leaves, suspected to be Tomato spotted wilt virus disease, was destroyed.

576. The sugar cane quarantine greenhouse was operated on behalf of the Department by the Mauritius Sugar Industry Research Institute.

577. At the end of the 1964-66 quarantine, 41 varieties out of 44 were released; two varieties failed to germinate and one was destroyed again showing leaf symptoms suggestive of mosaic.

578. The new quarantine cycle started in September, and the following varieties were received and have been successfully established in the greenhouse:

Originating from Australia:

Q. 69, Q. 72, Q. 76, Q. 78, Q. 80, Q. 82 Q. 83 and Q. 86.

From the West Indies:

B. 4906, B. 60267, B. 60191, B. 6103, B. 5908, B. 62110 and B. 5913.

From India:

Co. 775 and Co. 976.

From Taiwan:

F. 146 and F. 153.

From the U.S.A.:

Phil. 53-3, Phil. 53-33, Chino, Chinois, Chunnee, Agoule, Hathuni, Seretha, C.P. 55/30, 21 N.G. 31, 28 N.G. 27, 51 N.G. 13, 51 N.G. 153, 57 N.G. 52, 57 N.G. 57, 57 N.G. 68, 57 N.G. 77, 57 N.G. 123, 57 N.G. 127, 57 N.G. 155, 57 N.G. 198, 57 N.G. 233, P.R. 1013 and P.R. 1059.

MISCELLANEOUS DISEASES AND FUNGI

579. The following were recorded for the first time in 1966:

On *Averia gardneri*, leaf spot, *Cercospora dovyalidis* Chupp & Doidge.

On *Achras sapota*, leaf spot, *Glomerella cingulata* (Stonem) Spauld & Schrenk.

On *Aleurites fordii*, leaf spot, *Mycospharella websteri* Wiehe.

On Apricot, leaf spot, (a) *Phyllosticta* sp. (b) *Glomerella cingulata* (Stonem.) Spauld. & Schrenk.

As well as a Rust, *Tranzschelia pruni-spinosae* (Pers.) Diet.

On *Araucaria*, blight, *Phyllosticta* sp.

On *Aster* sp., leaf spot, *Cercospora* sp. of *C. apii* group.

On *Bougainvillea*, leaf spot, *Gladospodium oxysporum* Berk & Curt.

On *Brachiaria ramosa*, rust, *Uromyces leptodermis* Syd.

On Citrus spp., on leaves, *Cercospora citri-grisea* Fisher (?).

On leaves, *Colletotrichum orchidearum* Allesch.

On stems, *Dendryphiella interseminata* (Berk. & Rav.) Bubak & Ranojevic and a leaf spot, *Glomerella cingulata* (Stonem) Spauld & Schrenk.

On *Dahlia* sp., powdery mildew, *Oidium* sp. (*Erysiphaceae*) and a leaf spot—*Phomopsis* sp.

On *Dracaena* sp., leaf spot, *Phyllosticta dracaenae* P. Henn.

On Ginger, leaf spot, *Cercospora* sp. of *C. apii* group and on leaves, *Phaeoseptoria* sp.

On *Hibiscus subdariffa*, leaf spot, *Cercospora malayensis* Stevens and Solheim.

On *Nelembium speciosum*, leaf spot. *Alternaria nelumbii* Enlows and Rand.

and a number

fungi are ornamented

- On Phlox (Perpetual), leaf spot, *Cercospora omphacedes* Ell. & Holw.
 On Pineapple, on roots, *Aspergillus fumigatus* group.
 On *Physalis* sp., smut, *Entyloma australe* Speg.
 On Rose, leaf spot, *Pestalotiopsis adusta* (Ell. & Ev.) Steyaert.
 On *Salvia coccinea*, leaf spot, *Phyllosticta* sp.
 On *Tephrosia* sp., leaf spot, *Ascochyta* sp.

XIX. Entomology Division

580. In spite of staffing difficulties, the division has been working actively on a number of new projects for biological control as well as testing of new pesticides. Several new approaches to insect control were developed and 'integrated control' was being implemented against a number of major pests.

581. Significant advances were made in the field of biological control. The pronounced decrease in population of the potato tuber-moth was attributable to the mass release of the egg parasite *Copidosoma koehleri* Blanchard. Marked decrease in populations of *Achatina fulica*, Bowditch, giant African snail was due to mass breeding and liberations of *Euglandina rosea*. Valuable information has been gathered on the breeding sites of *Musca domestica* spp. and *Stomoxys* spp. and integrated control of *Musca domestica* and *Stomoxys nigra* and *S. calcitrans* is developing so well that housefly and stable fly populations are much below what they were over past years.

582. Considerable progress was made in the preparation of a book on the biological control of pests in Mauritius from 1918 to date and another book on Pest Control Recommendations was in an advanced state of preparation. A third publication on Citrus pests was in preparation.

583. The Entomologist was interviewed several times on television in connection with pest problems and was given the running of a scientific series of programmes. A series of half hour programmes were shown:

- (a) Quelques reptiles des Mascareignes
- (b) Le Cerf et sa chasse
- (c) Les oiseaux
- (d) Les agrumes
- (e) Richesses de nos côtes
- (f) Les migrations du criquet pèlerin
- (g) Rivalité Homme/Insectes
- (h) La Bilharziose
- (i) L'Apiculture.

In addition, a short film illustrating the structure of the mouth parts of the housefly was prepared in the Entomology Laboratory, using a Philips closed circuit television installation.

584. The Entomologist was invited to give a lecture on new pest control developments to Extension Service Officers and was asked to repeat a lecture on shells at Curepipe, Rose Hill and Port Louis. An illustrated booklet, entitled "Coquillages de l'Ile Maurice", was also printed.

585. During the year, the division has welcomed a number of distinguished visitors; Mr. and Mrs. Roderer (Mr. Roderer is the director of O.R.S.T.O.M.—Madagasikara); Mr. and Mrs. Moulin (Mr. Moulin is the Director of the Office des Forêts in Réunion); The Deputy Director of O.R.A.T. — Réunion; Mr. Hoarau also visited the insectarium and laboratory. The Scientists from overseas who visited the Division included Mr. Bedford, Entomologist South Pacific Commission; Mr. and Mrs. Fonsarrat (both Entomologists at O.R.S.T.O.M. — Madagasikara); Mr. Gutierrez (Acarologist at O.R.S.T.O.M.—Madagasikara and Mrs. Vicariot also of O.R.S.T.O.M.—Madagasikara), Mr. Etienne worked in the laboratory for a week in connection with various insect problems being studied in Réunion. Mr. P. Lalane, from the Seychelles, also stayed a month in Mauritius and collected various beneficial insects and snails for liberation in the Seychelles. Some 520 students, pupils and planters visited the Entomology Museum. Exhibits of local insects, publications, etc., were presented to Expo. 67 in Montréal, Canada.

586. Lectures were delivered at the College of Agriculture and about twenty film shows on insect damage to crops were arranged for members of the public on Saturday mornings.

587. During the year, the Entomologist went on a mission to Reunion and to Madagasikara under the aegis of the "Comité de Collaboration" Inter-îles.

588. The Division received a Shandon Microtone-knife sharpener from Messrs. Esso Standard. Plans for the building of a new-conditioned insectarium were approved.

TAXONOMY

589. Numerous identifications have been made by the Entomologist for officers of the Department and oversea institutions. These covered such groups as the Hemiptera, Coleoptera, Lepidoptera and Diptera.

590. The aim of the Division's taxonomic work was to provide a complete collection of pests in the island as well as an up-to-date collection of beneficial insects and other animals introduced in connection with biological control.

591. The Museum collection is an invaluable teaching aid for lectures to students of the College of Agriculture and to Extension Service Officers as well as to planters *et al.*

592. In the Diptera, a manuscript is in preparation dealing with a revision of species occurring locally. Revisionary work has been continued in the Orthoptera, Odonata and Hymenoptera. New aphid material is being systematically collected using Moreicke yellow traps and for other groups use is being made of black light traps, such as the Insectocutor.

593. A collecting expedition was undertaken in Nosy Komba, Madagasikara for the British Museum (N.H.) in an attempt to obtain material of a new subfamily of Hemiptera. Collections of parasites of houseflies and stable flies were being made also for the University of California.

APICULTURE

594. 'Brother Adam Buckfast Strain', a superior strain of bee developed in England as a result of 50 years of selective breeding by Brother Adam, a monk at Buckfast Abbey in Devon, England, was successfully introduced into the island. Live material was actually received from Israel where conditions for the rearing of bees are better than in England.

595. Film shows on bees were organised with the help of local apiculturists at F.U.E.L. estate. This was followed by a T.V. talk where the principles of Bee culture were explained. Cardonian Queen Bees were also privately introduced in Mauritius. Mr. Kasmareck, Apiculturist from Reunion came to Mauritius to study the possibility of introducing melliferous plants into Reunion. The setting up of a 'Société d'Apiculteurs de l'Ile Maurice' is being encouraged.

596. Queen bees of the Italian race were introduced on two occasions in 1958 by Rodriguez during the course of the year.

597. Artificial insemination of queens is envisaged for next year in Mauritius.

POPULATION DYNAMICS

598. Studies on the regulation of aphid populations were started but the investigations had to be stopped because of the resignation of Mr. Fon Sing.

599. It is hoped to resume these studies, as valuable information has already been gained concerning aphid attacks and their relation to the weather affecting the predators.

LOCUST SURVEY

600. No major work in the field was effected through lack of trained staff. It is hoped that predators and parasites occurring in Madagascar will soon be available.

601. Swarming was not reported from any locality. Two locally-occurring parasites are apparently exerting beneficial control. However, in December both *Locusta* and *Nomadacris* were fairly common at Belle Vue.

PSYLLIDS

602. A survey of psyllids affecting ornamentals was started. *Mesohomocidus lutheri* Enderlein severely affects *Hibiscus* spp.

603. *Diaphorina citri* Kuwayna is now a serious pest of Citrus in many localities. Appraisal of parasites suggests that biological control measures may be worth investigating.

ANTS

604. *Camponotus (Tanaemyrmex) mucalatus* Fabr. first collected at the Customs in August, 1948, must now be considered established in Mauritius in gardens around Port Louis. Several outbreaks were reported. The ants first reached Mauritius in cases of liquor from France and East Africa. Studies of the habits of this ant are worth investigating. Because of the size of this ant, outbreaks are acutely noticeable.

RESEARCH

605. Male genitalia studies of some twenty different species of Hemiptera have been resumed. The use of a needle-drawing apparatus and of a micro-manipulator were invaluable for such work. It is hoped that revisions of several genera of the Pentatomorpha will be submitted for publication next year.

THE INSECT FAUNA OF MAURITIUS

Fruit flies

606. During the year, some 375,000 *Pachycrepoides vindemmiae* (Rodani), bred in the insectarium, were released at various localities in the island. If trained staff becomes available, experiments and investigations with chemosterilants will be started. Time is the limiting factor here as a study of the reproductive physiology of the various species of *Dacus* and *Perittia* will have to be carried out concurrently.

ORYCTES RHINOCEROS

607. The progress made last year in the region of Trou-aux-Biches and Baie du Tombeau is now seriously threatened by transport difficulties. The few specimens of *Scolia procer* sent by the Commonwealth Institute for Biological Control were not recovered. The predator, *Pheropsophus sibiricus*, although released in large numbers does not seem to have developed satisfactorily. *Scarites madagascariensis*, collected in large numbers by the Entomologist in Madagasikara were recovered on three occasions only.

608. It must be stressed that the best form of control appears to be collection of larvae coupled with insecticide treatment of leaf axils using 2 per cent granular Dipterox or B.H.C.

POTATO TUBER MOTH

609. *Gnorimoschema operculella* (Zeller) was found heavily parasitised by *Copidosoma* in two localities in Black River and by *Mythobia* in the southern districts of the island.

610. In view of the fact that cultivation of potatoes is now being encouraged, the following species of parasites will be introduced next year: *Diadegma stellenboschense*, *Orgilus* sp., *Temelucha* sp., *Apanteles scutellaris*, *Apanteles subandius*.

611. Contact with the C.S.I.R.O. will be established to study the desirability of introducing the granulosis virus, discovered in 1964 in Australia. Apparently 55 per cent kill of larvae was obtained in field trials here.

HELIOTHIS ARMIGERA Hb.

612. The tachinid fly, *Drino imberbis* Wied., liberated last year in large numbers has not been recovered, although the ichneumonid *Ecphoropsis perdistinctus* was found on a number of occasions, but in small numbers, at many localities. The predacious bug, *Sycanus indagator* Stal, will be introduced next year.

AIR-CONDITIONED INSECTARIUM

618. Following the successes obtained in breeding with the Air-monitors three air-conditioned rooms will be built next year to mass produce the following insects:

Drino imberbis parasitic on *Heliothis*.

Pheropsophus sbrinus—a predator of *Oryctes*.

Platymiris laevicollis—a predator of *Oryctes*.

Muscidifurax raptor

Spalangia endius

Pachycrepoides vindemmiae

} All three parasitic on dipterous pupae.

614. It has been found that *Diastema tigris*, a newly introduced insect which feeds on lantana develops very well at 25°C and 50 per cent relative humidity. Mass releases are due to start at Le Morne, Wolmar, Belle Mare where Lantana is a fairly important pest of pastures, after completion of starvation tests.

PESTICIDES

615. Some forty new pesticides have been tried; of these the following have been approved for use in Mauritius:

Arprocarb (Baygon), Azodrin or Nuvacron, Bidrin (Carbicion, Dicrotophos), Cidial, Nogos, Delnav (Dioxthion), Disulfoton (Thiodemetonon, Disyston), Fac, Fitios (Ethoate Methyl), Galecron (Chlorphosphamidine), Hyphoter, Kilval (Vainidothion), Sapecron, Thiocron, Vainidothion, Zolone (Phosalone), Binapacryl, Terracur P, Torbida

616. Directions for application of these products is being collated for distribution among field workers but the following remarks may be of help to potential users.

617. Baygon (Arprocarb) was tested as a bait against houseflies and cockroaches and has been found to be the best blatticide used so far in Mauritius. Curiously enough male cockroaches are more susceptible than the females. The so-called Baygon residual spray bomb is unfortunately subject to nozzle clogging. The makers have been informed of this fact. Baygon is undergoing extensive tests against stable flies. As a larvicide, applied in emulsion spray to the droppings under caged poultry, control seems slightly better than with Baytex.

618. 'Nuvacron' (dimethylphosphate of 3-hydroxy-N-methyl-cis-crotonamide) tested against spider-mites, psyllids, white-flies of Citrus appears very promising as an insecticide and miticide. It is excellent against cotton-borers and leaf-hoppers. Results against fruit flies are not yet available.

619. 'Cidial' (phenthoate) (O, Odimehyl S - ethoxycarbonyl benzophosphorodithioate) was widely tested in the field and found effective against *Etiella zinckenella* Treit, a pest of *Cajanus*; against *Plutella maculipennis* Curt., water cress and against *Hellula undalis* F. on cabbage at 0.025 per cent a.i. The product is also very good against *Heliothis zea* Boddie (=armigera Hb) and a number of scale insects. Against *Diaphorina citri*, it did not however perform satisfactorily. Nymphs of various scales on Citrus were killed by a single spray but adults required several applications. *Heliothrips haemorrhoidalis*

hoidalis Bouche on Litchi and *Acalypha* were completely killed off at concentrations of 0.125 per cent a.i. The product does not appear efficient against *Phyllocoptruta oleivora* Ash.

620. 'Nogos' 50 EC at 20-30 oz per 100 gallons of water controls caterpillars of *Plusia* as efficiently as Carbicron (Phosdrin). This insecticide is polyvalent being excellent for the control of Psyllidae, Thripidae, Tetranychidae and against orthopterous and lepidopterous pests. Its low toxicity to human beings is a definite advantage over phosdrin. Nogos is however very toxic to bees. It gives excellent control of leaf-miners on potato, tobacco, cabbage, etc. Chemically Nogos is O, O — dimethyl - 2 - 2 - dichloroviyl-phosphate.

621. 'Delnav' (2, 3-p-Dioxanedithiol S,S-bis O, O-diethyl Phosphorodithioate), is outstanding as a miticide on Citrus especially against the rust mite. Its long residual activity and low application rate ($\frac{1}{4}$ - $\frac{1}{2}$ lb active ingredient per 100 gallons water) should favour its use. A further advantage is that fruit can be harvested on the same day that the pesticide is applied.

622. The use of 10 per cent Disyston granular, a soil systemic insecticide, acaricide ensures long-lasting protection against infestation by sucking and mining pests. The chemical name of Disyston is O, O-diethyl-S-2-(ethylthio)-thyl phosphorodithioate. Trials are in progress as a protective treatment on seed potatoes, against the sugar-cane scale and against *Brassica* aphids. Disyston has given excellent control of the pineapple mealy-bug and of aphids on tomatoes. Dosage, in terms of active ingredient is 1-1.5 kg per arpent.

623. 'Fac' (chemically the isopropylamide of O, O-diethyl-dithio phosphorylacetic acid) shows marked biological activity against many agricultural pests, mainly by contact. Successful applications have been made against aphids, mites, thrips, Psyllids at 1.5 per cent. Although less toxic than Parathion, Fac is highly poisonous to human beings and warm blooded animals. The dosage rate of Fac 20 is 1.5 lb per 100 imperial gallons of water.

624. 'Fitios' B/77, a product containing 20 per cent of N-monoethylamide of O, O dimethyldithiophosphoryl acetic acid is effective against fruit fly eggs and larvae at 200 grms per 100 litres water. It also controls aphids and mites (*Tetranychus* sp.). Its low toxicity is another advantage of the product. A minimum of 6 days must elapse between last application and harvest of edible crops.

625. 'Galecron', N-(2-methyl-4-chlorophenyl)-N, N-dimethyl-formamine, is being tested against mites and red spiders. Its ovicidal properties are outstanding even on eggs of *Heliothis* and *Prodenia*. Mixed with 'Nogos' shows synergetic effects on many insect and acarine pests. Slight phytotoxicity was observed on beans, egg plant and potato plants; effects were still more marked on *Chrysanthemum*. The dosage rate is 0.05 per cent a.i.

626. 'Hyphoter' a low-toxic veterinary insecticide with bactericidal properties containing 25 per cent phosphoter and 5 per cent Terpeneol is effective against house and stable flies, mosquitoes, ticks, at 2-4 cc per 1. metre. The product is 10 times less toxic than malathion and 6 times less toxic than Diazinon and is also claimed to be 80 times less toxic than DDT.

627. 'Kilval', Vamidothion, chemically known as (N-methyl-O, O-dimethyl-thiophosphoryl-5-thia-3-methyl-2-valeramide) is effective against aphids, red spiders, thrips, cicadellids and leaf miners. It shows moderate toxicity to human beings, being 9 to 10 times less toxic than parathion. The dosage rate is 500-1000 grm per acre.

628. 'Phosalone' (Zolone), O, O-diethyl-S-(6-chlorobenzoxazolone-3-yl)-methyl phosphorodithioate is a broad spectrum insecticide acaricide active against a wide range of local pests.

629. Other products being tested include EPN, Sapecron, Thiocron, Binapacryl, Torbidan, Lannate and Dupont Insecticide 1642.

NEMATOCIDES

630. Terracur P (Fensulfothion) whose chemical name is O, O-diethyl O-p-(methylsulfinyl) phenylphosphorothioate is a granular nematocide for controlling root parasitic and cyst nematodes. Results on plant tolerances are not yet available. The product is being tested against root-knot nematodes on tobacco and a series of tests on vegetables are planned for next year. The product will also be evaluated against Temik-an aliphatic carbamoyloxim with systemic activity.

OUTBREAK OF SCALE INSECTS ON SUGAR CANE AT POINTE-AUX-SABLES NURSERY

631. The problem of scale-insects (*Aulacaspis tegalensis* Zehnt) on cane is a major one in Mauritius. The species has been known to exist in the island since the year 1899 and is now all over the western coastal belt as well as in the north-east and southern coastal areas, where it occurs in patches. Heavy attacks occurred last year at the Pointe-aux-Sables nursery and in some fields cane was actually dying. Spraying with Gusathion at 6 cc per litre (medium volume) and Bidrin 10 cc per litre, every 3 weeks considerably reduced the infestation but, spraying operations being costly experiments using 10 per cent granular disyston, applied to the soil, are due to start next year as diaspid scales are fairly susceptible to this pesticide. The work is being carried out for the Sugar Cane Nursery and the project was discussed with the Director of the Mauritius Sugar Industry Research Institute.

CONTROL OF ACHATINA

632. The predacious snail, *Euglandina rosea*, obtained from Hawaii in 1959, is now established all over Mauritius. *Achatina* has disappeared from many areas where it was a pest and is now less abundant than before in Mauritius. Several consignments were sent to Madagascar, Réunion, Rodriguez and the Seychelles.

RESEARCH ON CONTROL OF THE COCONUT PALM RHINOCEROS BEETLE

633. Mr. G. O. Bedford, Entomologist of the United Nations Special Fund Project in the South Pacific Region visited Mauritius and showed considerable interest in the work carried out by the division on the predator *Pheropsophus sibiricus*. He is to visit Mauritius again next year to carry out a survey of the internal parasites of *Oryctes* spp.

634. In the coconut plantation at Trou-aux-Biches, it seems that *Oryctes* is under control through plantation sanitation measures designed to eliminate *Oryctes* larvae-breeding sites in rotting logs and in dead standing palms. If increased transportation facilities were available it is considered that the *Oryctes* problem might be solved. 2 per cent granular Dipt-rex, placed in leaf axils, is still the best form of insecticide control of adults.

CITRUS

635. The most widespread pests of Citrus are *Trioza merwei* Petty (= *Spanioza erythrae* de G.) & *Dialeurolonga simplex* which cause leaf galls. Investigation of parasites of these is being carried out.

636. *Bidrin* is outstanding in controlling *Trioza* but does not work as well against *Dialeurolonga*. *Diaphorina citri* Kuwayana, a vector of 'Greening', a virus disease, which is now fairly widespread in Mauritius.

637. Experiments with soil systemics are in progress; oil sprays are not advisable in Mauritius as they are invariably followed by defoliation and leaf fall. The whit fly problem (*Dialeurolonga* (?) *simplex* Tak.) is now an acute one all over the island, a mission to Madagascar is planned for 1967. Attempts will be made to look for parasites and predators of this insect.

638. Mites are not really a problem on Citrus if regular applications of one of the following acaricides are made, namely Delnav, Kilval, Fac, Fitios, Galecron.

639. Nematodes were encountered at Labourdonnais but the identity of the species is in doubt. Soil treatments with Terracur P and Temik are planned during the coming year.

THE FRUIT-FLY PROBLEM

640. A new edition of the paper 'Fruit-flies of Economic importance in Mauritius' is in preparation. The successful breeding and liberation of *Pachymeropideus vindemniae* must be put on record, some 300,000 specimens, were received through the Commonwealth Institute of Biological Control and over a million liberated, following breeding in the insectarium.

641. On present evidence, Lebaycid is still the best pesticide for chemical control of the larvae but Fitios B/77 has been tried successfully in many areas. Dipt-rex and Rogor are slightly inferior.

642. The introduction of male lures as used in Australia by Mr. A. Villison is under study. Synthetic 4-(p-hydroxyphenyl) butan-2-one is to be introduced in connection with eradication measures.

643. Irradiation using the sterile-male technique is also being studied. With the help of Professor Delormes of the Centre d'Energie Atomique at Annanarive, joint researches are to be undertaken with Mr. Gilbert Ravejoana of Madagasikara, who is planning to visit Mauritius in 1967. The building of a new insectarium for rearing massive numbers of fruit flies is required.

XX. Agricultural Chemistry

FEED STUFFS

644. The raw materials received at the Livestock Feed Factory for the preparation of animal feeds were checked on reception at the factory. Maize produced locally was of a high moisture content when received at the factory. Moisture determinations on the whole grains was found to give a lower figure (about 2 per cent) than on broken grains. Hence, when local maize is checked for moisture content, the grains should usually be crushed prior to over-drying. The prepared feeds were also analysed.

FODDER

645. Very few analyses were done during the year. It was interesting to note the high protein content of two new varieties imported from Israel.

		Dry Matter per cent	Protein per cent D.M.
Saria No. 1	...	20.7	17.4
Saria No. 2	...	14.6	20.6

COMPOST

646. The analysis of compost was continued periodically. The carbon to nitrogen ratio (C/N) fell continuously when the green compost was left to mature for 3 to 4 months. The moisture content is a critical factor for the destruction of the organic matter. It has to be kept at about 30 per cent by periodical watering. The physical condition of the compost is considerably improved on maturing. Some results of analyses are given below:

Compost	pH	H ₂ O	N per cent D.M.	Organic Carbon per cent D.M.	C/N
Green	7.3	23%	0.82	17.2	21
3 months old, moisture kept low	8.3	15%	0.80	16.8	21
3 months old, watered	8.3	30%	0.76	11.6	15

Average figures for other constituents, expressed on DM basis were:

Minerals	P ₂ O ₅	K ₂ O	CaO	Organic matter Loss on Ignition
57	0.7	0.8	9.5	43

SCUMS

647. Experiments were repeated at Flacq United Estates Limited on the de-watering of defecation scums, using nylon bags of various mesh as filter. No difference was observed on the retaining capacity of the filter bags.

SUNFLOWER AND GROUNDNUT

648. Different varieties were analysed for the assessment of dry matter and oil content of seeds. Great variations were found on the oil content of sunflower seeds, the range being from 20 to 45 per cent on a dry matter basis. The oil content of groundnuts was more constant, ranging from 45 to 50 per cent on a dry matter basis.

WATER

649. Water for various uses was analysed:

1. Irrigation water was checked for salinity content.
2. Water used for building purposes was analysed for acidity, total solids and loss on ignition.
3. Water used at the Dry Cleaning for laundry was analysed for hardness.
4. Detailed analysis of underground water was carried out at the request of the United Nations Special Fund Project. An important aspect of this type of water was its content of dissolved carbon dioxide, causing it to be slightly acid, pH just under 7. On heating, the reaction turned from acid to alkaline, with a pH as high as 9.

MISCELLANEOUS

650. At the request of the Agricultural Division, samples of ginger were oven dried to ascertain the moisture content by drying for specified periods at temperature between 55° and 60°C.

651. At the request of the Tea Division, batches of soil prepared for tea nurseries were checked for pH.

652. All the fields of Curepipe Experiment Station were sampled for acidity. The pH was found to lie between 4.5 and 6.

653. Various fertilizers both simple and compound were analysed.

654. The following were analysed for Rodrigues:

- (i) Raised coral reef used for making building blocks. It was found to contain 2 per cent moisture, 2 per cent magnesium carbonate and 95 per cent calcium carbonate.
- (ii) Soil for available N, P, K.
- (iii) Common salt produced at Baie Topaze. Compared with a sample produced in Mauritius, the following was obtained:

		<i>Rodrigues</i>	<i>Mauritius</i>
Moisture	% DM	8	3.7
Sodium	% DM	57.4	58.6
Chloride	% DM	39.1	39.9
Calcium	% DM	0.43	0.29
Magnesium	% DM	0.52	0.26
Sulphate	% DM	0.94	0.70

655. The salt from Rodrigues was more hygroscopic on account of its higher content of magnesium sulphate.

656. Sea slugs boiled and dried to be used as pig food gave the following:

Moisture	...	...	0.7
Protein	...	...	62
Oil	...	...	2
Ash	...	...	21
Fibre	...	...	0.3

XXI. Engineering Division**CENTRAL WORKSHOP**

657. The servicing, repair and maintenance of all departmental vehicle tractors and machinery were carried out at the Central Workshop. Complete service records were kept. The following servicing and repairs were carried out:

Vehicles	...	...	...	363
Tractors	...	...	...	179
Other agricultural machinery				248
Total				790

658. One lorry was completely overhauled and spray painted.

659. The following equipment and accessories were designed, assembled, fabricated or installed:

1 metal body for trailer

Side boards and tail board for one trailer.

1 canopy for lorry

9 tarpaulins for Rodrigues

1 wooden body for lorry

1 subsoiler assembled

1 tea leaf transport trailer complete with tarpaulin

6 pairs of gates for Roche Bois Quarantine Station

270 rail posts, T Bars, angle iron bars for a drive at Roche Bois

1 Experimental hydraulic ram for fisheries

1 Crab basket for fisheries

385 foundation and other bolts, hinges, brackets and supports

1 extractor fan and chimney for fume cupboard at the College of Agriculture

21 tables

2 cupboards

7 filing cabinets

6 chairs

1 blower for potato storage trials at Curepipe.

660. Five hundred and forty-one oil drums were steam cleaned for transport of materials for Rodrigues.

BUILDINGS

661. The following buildings were completed and handed over:

(1) 2 cattle sheds and 1 drive at Roche Bois

(2) Conversion of Workshop into a drawing office

(3) conversion of byre into offices for Division of Veterinary Services.

662. The following minor works were carried out:

- (1) repairs to greenhouses at Reduit
- (2) repairs to Livestock Assistant's Quarters at Mapou
- (3) repairs to roof of Livestock Feed Factory
- (4) repairs to Plant Inspector's Office, Port Louis
- (5) repairs to Assistant Agricultural Engineer's Quarters, Richelieu
- (6) temporary addition to carpenter's shop, Richelieu
- (7) repairs to doors of Central Store, Reduit.

663. Site works were started on:

- (1) insecticide store, Réduit.
- (2) fisheries office, Réduit.
- (3) extension of Livestock Feed Factory, Richelieu.
- (4) garages, Wooton.

664. Technical advice was provided to other divisions of the Department. Lectures on strength of materials were delivered at the College of Agriculture.

LIVESTOCK FEED FACTORY

665. 4,556 tons of various animal feeds were manufactured from such products as wheat bran, maize flour, groundnut cake, cotton seed cake, pollard, meat meal, fish meal, oats, lucerne meal, bone meal, cod liver oil, skimmed milk powder, molasses, bagasse, wheaten flour, rice bran, broad beans, scums, trelcovite, trelco D 3, trelco brand nitrofurans, trelco brand nitrofurazone, amprolmix U K, nutrigain, T.M. 10, amofat 20, adtramin, glucose, yeast, chick mix, breed mix, ground sand and salt.

666. Fifteen different kinds of animal feeds were offered for sale, namely: poultry feed, chick feed, cow feed loose, cow feed cubed, calf feed, bull feed, new cattle feed, pig grower feed, pig starter feed, creep feed, horse feed, special horse feed, scums molasses feed, breeders feed, calf milk substitute.

667. 4,571 tons of livestock feeds were sold at the Livestock Feed Factory and the Extension shop, Rose Hill. A statement of revenue and expenditure is given at Appendix "E".

XXII. Fisheries

668. The duties of the division were to enforce the provisions of the law regulating fisheries in territorial waters and to study, recommend and implement such measures as may be necessary to improve the production and protection of fish. It also collects statistical data, takes all steps necessary to improve the efficiency of the industry and the welfare of the fishing community.

669. The three flying squads, created in August, 1965, continued to do valuable work in preventing the use of illegal nets and explosives. Their mobility proved a nuisance to fishermen and others, fishing with illegal equipment. Over the end of the year holidays, the Mahebourg fisheries post had to be reinforced by the squads to foil repeated attempts to poach the fish farm.

DETECTION OF FRAUD

670. The results of the control exercised by the Inspectorate were follows:

Year	Cases Prosecuted	Convictions	Total Contra- ventions	Illegal Nets	Explosives	Total of Fines Rs.
1962	195	192	270	61	35	4,950
1963	213	199	279	84	22	6,657
1964	144	230	185	76	19	5,915
1965	89	112	140	36	9	3,911
1966	270	306	305	98	31	8,037

Sixty-one cases were pending at the 31st December.

NEW EQUIPMENT

671. A new patrol boat, 23 feet long by 7 feet wide, was constructed Grand Gaube and is in use in the Mahebourg lagoon area. One 20 h.p. and two 9.5 h.p. outboards were purchased.

672. The construction of 3 fishing boats for research purposes was provided for in the 1966-70 development programme; the boats are to be built locally and during the first two years of the programme. With the cooperation and assistance of the Director of the Marine Services and his staff and Messrs. Taylor Smith & Co., suitable designs in wood for the 26 foot and 36 foot boats were selected and preliminary specifications and the layout for the 85 foot all steel fishery research vessel were finalised. In December a firm order was placed with Messrs. Taylor Smith & Co. for the construction of the 26 foot boat and an offer to build the 36 foot boat was awaited from the same firm.

673. The 26 foot vessel is designed to fish outside the reef on the continental shelf in all, save the worst, weather and should also be capable of accommodating six fishermen. Besides investigating the fish resources on the continental shelf around Mauritius and Rodrigues, this boat should lead the way in mechanising the fishing fleet and increasing the harvest from the continental shelf. The 36 foot vessel is intended to provide the Fisheries Division with a craft of suitable size and capacity to undertake the exploration of the continental shelf and to provide the facilities for developing new and more efficient methods of fishing in these waters. The 85 foot research vessel will be equipped with all modern fishing aids and be capable of undertaking most types of fishing. The ship will be equipped with blast freezing facilities and a 25 ton hold capacity. This vessel will explore the deeper waters of the continental shelf around Mauritius and its dependencies. It will also survey the extensive fishing banks lying between Mauritius and the Seychelles and undertake experiments with a view to increasing the yield per fisherman a day. It will also concern itself with tuna fishing in the western Indian Ocean.

CONSTRUCTION OF FISH SHEDS

674. Two fish sheds, built by the Department at Trou Chenille and Ba du Cap, were commissioned in November. The construction of a third shed at Poudre d'Or commenced in December.

SEA FISHING

675. The total controlled catch landed was 1,129 tons. The controlled catch per quarter in metric tons was as follows:

	1962	1963	1964	1965	1966
1st Quarter	284.2	372.1	296.0	284.0	240.0
2nd Quarter	334.4	436.6	348.0	299.0	346.0
3rd Quarter	257.4	322.2	204.0	214.0	227.0
4th Quarter	339.3	344.0	297.0	322.0	316.0
	1,215.3	1,474.9	1,145.0	1,119.0	1,129.0

The average for 1962-1966 was 1,180.5 metric tons.

676. The catch landed by net fisheries was as follows:

Year	Catch (metric tons)	% of Total Controlled Catch
1962	414	34.0
1963	396	26.8
1964	327	28.5
1965	300	26.8
1966	282	24.9

677. The contribution to the catch by the various modes of fishing was as follows:

CATCH IN TONS

		Average			Catch
		1951-55	1956-60	1961-65	1966
Nets	...	410	363	370	282
Basket traps	...	715	628	474	403
Lines	...	247	275	216	243
Octopii	...	238	219	196	185
Lobsters	...	27	28	21	12
Harpoon fish	...	—	7	11	4
TOTAL	...	1,637	1,520	1,288	1,129

678. The distribution of the fish species caught was as follows:

Species		1965	1966
		Kgs	Kgs
Capitaine <i>Lethrinus nebulosus</i>	...	22,283	32,980
Dame Berry, <i>Lethrinus mahesa</i>	...	44,741	46,919
Battardet, <i>Lethrinus harak</i>	...	16,437	31,819
Caya, <i>Lethrinus reticulatus</i>	...	18,630	24,077
Cordonniers, <i>Siganus spp</i>	...	212,702	190,212
Rougets, <i>Mullus</i>	...	45,793	49,004
Mullets, <i>Mugiloidae</i>	...	33,171	28,247
Vieilles, <i>Senanidae</i>	...	58,144	63,159
Licornes, <i>Naso spp.</i>	...	106,894	139,082
Octopii	...	195,708	184,798
Lobsters, <i>Panulirus spp.</i>	...	18,258	12,178
Other species of fish	...	346,786	327,468
TOTAL	...	1,119,547	1,129,943

679. The total landings averaged over five year periods were as follows:

Periods	Total catch (metric tons)	Deviation in metric tons from the average
1946-50	1,492	+ 8
1951-55	1,637	+153
1956-60	1,520	+ 36
1961-65	1,288	-196

680. The total controlled catch for 1966 was similar to that for the previous year which indicates that efforts to arrest the depletion of the lagoon and offshore fisheries has had some success. As the average figures for landings have indicated, the continued drop in catches can only be attributed to over-fishing. This downward trend appears to have been arrested and if this position can be maintained for a few years, measures being taken to conserve stocks should result in a gradual improvement in annual landings. It must be emphasised that there may be no visible improvement in landings for a year or two.

681. Thereafter, gradual increases can be expected provided energetic measures of control are maintained and fishermen adopted the more selective methods of fishing being recommended.

SHARK INVESTIGATION

682. This project was terminated during the year. The techniques which were described in last year's report have been firmly established. The fishermen who were trained to capture sharks and process the meat have now acquired wide experience.

683. By July of the year under review, fishmongers became aware that shark meat, processed or otherwise, was appreciated by at least one section of the population and the purchase by fishmongers of landed sharks from the fishermen at the established price increased. As a result, less shark was offered for sale at Pointe-aux-Sables. This reduction in deliveries warranted reducing the people employed to one labourer to receive and process the odd shark which nearby fishermen might wish to dispose of. The other personnel of the team, namely a fishery inspector and three fishery guards, resumed their former duties.

684. This project has achieved its objects which was to devise a simple means of capturing sharks, formulating a suitable salting and drying technique and establishing a purchasing system based on the relationship between the length of a shark and the weight of ready-to-process meat.

GILL-NETS

685. Since its inception in 1963, this project has been designed to establish suitable mesh sizes for nets. Meshes of 10 cm measured diagonally appeared to be compatible with the size at maturity of most of the fish caught. An experiment, over the period October, 1965 to October, 1966, was initiated to ascertain if a gill-net of 10 cm mesh would be as effective as a large seine of equal length but with the usual 7.5 mesh.

686. The legal length of a large seine is 500 metres. Consequently, 500 metres of 10 cm mesh gill-netting in two sections of 300 and 200 metres respectively were given to the Ste. Cecile Cooperative Society of Bambou Virieux, to fish in that area on the condition that the society discontinue fishing with its large seine. After a few months trial, the 200 metre section proved to be less effective than the 300, and it was consequently established that the optimum length of a gill-net should be 250 metres and that such lengths should be used in replacement of a 500 metre large seine.

687. The experiment covering the period from October, 1965 to October, 1966 gave the following results:

<i>Months</i>	<i>Landing of both nets Kgs</i>
October 1965 ...	778
November	686
December	559
January 1966 ...	508
February	787
March	630
April	578
May	457
June	420
July	404
August	429
September	207
TOTAL ...	6,443

688. For a period of one year therefore, these two nets have captured a total of 6,443 kgs or 6.443 tons of fish, a figure which compares favourably with the estimated 7 tons annually predicted in the 1965 report. Furthermore, the results are as good as any which may be obtained with a large seine; in fact, an annual landing of 7 tons by a large seine is considered very good. In 1966, 32 large seines landed 237 tons of fish giving an average of approximately 7 tons each, although some have landed much less.

689. The sudden fall in effort from May to September is attributed principally to the unfavourable bad weather which prevailed during that season and to the fact that one net, experimentally fabricated with number 9 nylon thread, was found too weak to hold larger fish which, had they been landed, would have contributed substantially to increasing the total weight. In addition during the months of August and September one net had a mesh size of 12 cm.

690. To compare the efforts of a larger mesh, one net of 10 cm mesh was replaced by one of 12 cm mesh for a period of 4 months from August to December inclusive.

691. The larger mesh is less effective in respect of the total weight of the catch. It is more effective however for certain species of comparably larger fishes such as Carangue, Gueule Pavée, Mullet Gros Caille and Capitaine, and will in fact catch a greater weight of these than the net of smaller mesh.

692. The weight of the landings of the 10 cm mesh is generally greater because it is more effective in respect of the smaller species which are more abundantly represented such as Maquereau, Sapsap, Needle fish and others whose normal size at maturity permits them to pass through the 12 cm mesh.

693. The results of this experiment were as follows:

Months	Landing in Kgs	
	12cm	10cm
August ...	146	282
September ...	92	115
October ...	70	204
November ...	81	160
December ...	88	274

694. The 10 cm mesh was a more satisfactory net for the fishermen. Seventy per cent of the fish caught were estimated to have reached maturity which is quite the reverse of existing conditions where seventy per cent of the fish reaching the market are immatures. A smaller mesh would affect the fish stocks adversely.

FISH FARMING

695. The objective of this project is not so much to demonstrate fish farming as such but to identify problems for the rationalization of potential enterprises of that nature.

696. In July, funds became available for continuing the construction of additional enclosures and tanks and for installing pumps.

697. Experience to date has indicated that a fish farm in Mauritius can be organized to be independent of captive breeding stock, since it is possible for fry of Cordonnier, *Siganus fostratus*, battardet or Breton, *Letrinus harak*, Rouget *Mullus* and Mullet, *Mugil* spp., in ample quantities, to enter freely from the sea. The experimental fish farm at Mahebourg is linked with the sea by a 15 foot open channel, situated near the shore, where at low tide the water is approximately 2 feet deep. This channel is linked by a long corridor to a trap system into which fish may enter the farm but cannot escape. It permits the passage of almost the bulk of 30 million gallons of sea water flowing in and out the farm during each tidal cycle, thus creating a stream which originates from a zone rich in food and heavily populated with fry. In November, at the peak of the spawning season, large schools of fry of *Siganus fostratus* and *Mugil* spp., entered the farm. Two members of an F.A.O. mission to Mauritius witnessed and photographed a school of *Siganus fostratus*, conservatively estimated to measure 100 yards long, 2 feet wide, and of an undetermined depth entering the channel. Each specimen measured about one centimetre in length. Mullet and Battardet have also been observed to enter in lesser numbers.

CRABS

698. An investigation aimed at determining the food conversion factor of Crab Carlet, *Scilla Serrata* was continued.

SIGANUS FOSTRATUS

699. A somewhat similar investigation is in progress with Cordonnier, *Siganus fostratus*. It is estimated that this is the most prolific salt water fish in the waters around Mauritius, and, as a fast grower, it could, if adequately protected, supply most of the bulk of protein to be harvested from the lagoons.

700. It is common knowledge that under natural conditions this species feeds principally on sea weeds. Feeding experiments have demonstrated that it will readily consume salted shark meat, boiled rice, lettuce, carrot stems and tomato leaves. Generally speaking, the rearing of this fish in salt water ponds presents no major problem, since it can be fed quite economically with weeds which grow on the sea shore. However, these weeds are seasonal and a fodder is being sought for the period of a few months when they are not abundant, since it must be borne in mind that this fish is kept in captivity where it may be assumed feeding facilities may be more restricted than otherwise. Experimentally therefore, it is necessary to determine the food conversion factor of a chosen diet in relation to growth rate and to ascertain the stage at which it becomes uneconomical to keep adults which, because of their age and size, will consume food which should more profitably be available to younger generations.

701. Facilities to determine if this species of fish will spawn in captivity have been available only recently. In the absence of previous information as to its breeding habits, several hundred specimens, one and a half year's old, each weighing approximately one half pound, are now kept in a special pond for study and observation.

MULLET

702. The mullet is an interesting fish to raise and since it is a plankton eater no additional feeding experiments have hitherto been contemplated. So far three generations are present in large numbers in the main area of the farm, the oldest averaging about 2 pounds per specimen. It is of interest to note that this fish appears to adapt itself readily to brackish water.

MOLLUSKS

703. Mollusks feed on plankton at the near end of the primary food chain. Indirectly therefore their basic requirements are sea water, carbon dioxide and energy in the form of light. For this reason, theoretically at least, they constitute an economical source of protein food, and shell-fish farming is an undertaking which deserves greater attention than it has hitherto received in Mauritius. Oysters, mussel and the large *Perna*, locally termed 'Mangoague', have considerable importance as food, and attempts are being made to rear these systematically.

OYSTERS

704. At the western end of the farm, there is a small cove of approximately one half acre bounded on one side by a hill of stratified rock formation through which fresh water seepage had often been observed. This warranted an investigation into the possibility of obtaining fresh water to create brackish conditions for raising oysters. With little effort four large high-yielding fresh water springs have been uncovered, the flow from which did not diminish appreciably during the prolonged dry weather which prevailed during the later part of the year. In a short time, the water density in one area of the cove reached 1.5 to 2.0 thus creating a biotope propitious for cultivating *Griffia cuculata*. As a result 1,000 dozen oysters, placed in specially designed trays at midwater level, are now thriving and showing promising growth rates.

705. The creation of conditions for the growth and reproduction of oysters on an experimental scale within the farm now satisfies the requirements of research into possibilities of obtaining a genetically select strain of fast growers. It has in fact already been observed that in the same area at close proximity to one another, some oysters, although of the same estimated age-group, are very much larger than the others. It appears to be rather doubtful that this situation is due entirely to restricted food intake by the smaller specimens, but is more likely the result of atrophy. An experiment in progress under controlled conditions aimed at ascertaining the cause, seems to indicate that this is so, but at least another year's work will be required to establish reasons for the difference.

MUSSELS

706. A relatively large species of Mussel is known to exist on the south westerly coast of the island. Although not a *mytilus* but a *Barbatia* it is well appreciated by a sector of the population. A quantity of these was transplanted into the farm with the object of devising suitable means of rearing them. Preliminary attempts at colonizing them on manilla or nylon ropes, as is practised in the Mediterranean, have failed. Some success has been achieved by fixing them in colonies of from 5-10 to sections of asbestos sheeting roughly four inches square and perforated at the centre. As soon as the mussels are firmly fixed on the sections, they are stacked one above the other by passing a two foot length of wire through each perforation, the individual sections being kept apart from one another by means of similarly perforated thick oyster shells. These stacks are hung vertically from a wooden pole fixed horizontally at the surface of the water at low tide. The mussels appear to be thriving well under these conditions and have spawned. This technique should save space and in another year or so should indicate how successful the technique is likely to be.

PERNA

707. The meat of the large *Perna* is known to be an excellent food and delicious. Its existence is now in adequate quantity but is gradually being menaced by intense collecting both for food and for bait. Since on experiments with this shell fish other than those stemming from an interest in growth and reproduction have been contemplated, a special area was reserved and enclosed for its study in its natural habitat at Vieux Grand Port. Collectors consisting of wooden rods stuck in the mud, were soon covered with this season's spats, and it has been observed that this large *Perna* is a fast grower easily attaining two inches in diameter in its first year of existence.

EXTENSION WORK

708. The Experimental Fish Farm has roused the interest of several persons of whom two are actively operating on limited projects at Bambou Virieux and at Little Black River respectively.

709. The Bambou Virieux operation is aimed mainly at the systematic cultivation of oysters though a development for raising crabs is also under consideration. The enterprise is in an area where oysters grow naturally on rocks but where, as elsewhere on the coast of Mauritius, the collection of spats has not yet been practised on any large scale.

710. The advice and recommendations offered have been conscientiously followed and it is gratifying to report that the proprietor now has, after one year's work, an 'oyster farm' containing approximately 24,000 commercial size oysters and over 2,000 spat collectors.

711. Spat fall this year was good and the young oysters adhering to the collectors should, in a few months, be sufficiently conditioned for transfer to the main fattening beds. The collectors consist of damaged rough tile piping coated with a mixture of lime and sand. This covering is sufficiently stable to withstand the effects of water for several months and has the advantage of being easily peeled off with young oysters adhering to the coating which disintegrate in time. During this operation damage to the oysters is minimal and the 'collectors' can last for many years. They must however be coated each year at the time of spat fall.

712. The rather large scale operation at Little Black River is based on a pattern somewhat similar to the experimental fish farm at Mahebourg. It is sited in a shallow cove separated from the sea by an artificial causeway fitted with gates to allow fresh sea water to flow in and out. It covers an area of approximately 50 acres with a special enclosure for raising crabs. In addition mullets and cordonnier are being reared. These are not yet all of mature size but trap systems similar to those used at Mahebourg are successfully selecting specimens of commercial size.

713. The proprietor of this enterprise also has commercial salt pans into which salt water is pumped for evaporation and by 'by passing' the main water through the salt pans, sea water is being supplied to specially constructed ponds in which crabs and mullets are being raised at a distance of about one half mile inland.

714. Unfortunately attempts to raise oysters in this project have not been much of a success. They are of the species *Ostrea folium* which thrives in sea water. Spat fall during 1966 has been almost negligible. However the proprietor has expressed his interest in the rearing of mussels and colonies from Mahebourg will be transferred early in 1967.

XXIII. Rodrigues

GENERAL

715. January and February were dry months and no planting rains fell until March, to the detriment of the main season maize crop. September and October were exceptionally dry and the drought continued up to the end of the year. The early drought adversely affected the largest onion crop ever planted on the island. The crop was estimated to yield 1,200 tons, in the event 755 tons were exported, a record for the island. 1966 was an exceptionally dry year with monthly rainfalls generally well below normal.

716. It is estimated that out of a population of 20,613 people, some 4,000 families are small farmers and fishermen. At the end of the year, it was estimated that these families were settled as follows:

(a) 320 families on alluvial flats in valley bottoms;

- (b) 880 families on good, fertile, terraced farms in the lowlands;
- (c) 1,221 families on terraced, upland farms, about 800 of which were still in poor fertility, but improving year by year due to erosion control and manure applications;
- (d) 38 families on fertile dairy farms;
- (e) 500 families employed in local commerce, fishing or by government;
- (f) 1,041 families living off about 7,724 acres of abandoned eroded lands which are being farmed on a shifting cultivation basis using no erosion control measures and little manure.

717. The land rehabilitation programme in Rodrigues has resulted in some 1,659 families being provided with stabilized farms, rehabilitated from eroded land, capable of providing an adequate livelihood for the farmer and his family. An additional 800 families have occupied rehabilitated farms and are in the process of rebuilding the fertility of their land, now that erosion has been stopped and farmyard manure is available. This rebuilding period will take 2-3 years but, in each year, the return from the land will increase. There remain about 1,841 families to be provided with upland, lowland or dairy farms, following the rehabilitation of eroded land. In general, the latter families are in need of paid employment during the year, as the lands they are farming are so eroded that returns per acre are such as to be unable to give them a reasonable livelihood. These families are employed mainly on the development programme, which is designed to rehabilitate the eroded lands that they are presently farming and settle them back on the rehabilitated land on small farms where they can become self-sufficient.

718. If the present rate of development is maintained for a further five to six years, all families in Rodrigues should have been provided with farms which should make the family self-sufficient and give the farmer a reasonable standard of living. The necessity for relief works will continue but the volume of such work will decrease, as occurred this year, compared with previous years, until such time as all families are in possession of farms protected against soil erosion and provided with means of making farm-yard manure.

719. The island was divided into ten agricultural districts with two Assistant Agricultural Officers, each with five districts. Each district was staffed with one or two overseers with a district headquarters, demonstration plot or breeding centre. The development work in a district is supervised and carried out by the overseer and controlled and checked by the Assistant Agricultural Officer. Each district headquarters has a small clerical and store staff. At Citronelle, in the centre of the island, is situated the headquarters of the division with an Executive Officer and staff. An Executive Officer attached to the District Administration, carried out regular inspections of stores and offices for internal control. At Marechal is situated the Agricultural Training farm, set up with the assistance of the United Kingdom Committee of the Freedom from Hunger Campaign.

PRODUCTION AND MARKETING

720. The M.V. "Mauritius" made 15 trips to the Island and shipped the following exports:

Date	Cattle	Pigs	Sheep & Goats	Crates of Fowls	Onions (bags)	Garlic (bags)	Acacia (bags)	Salt Fish (bales)	Octopus (bales)
0. 1.66	...	98	118	25	—	—	6	29	3
8. 2.66	...	61	128	27	—	—	—	291	29
5. 3.66	20	471	623	225	—	11	1	261	55
3. 5.66	21	318	617	134	—	—	1	633	103
2. 6.66	22	552	593	109	—	—	39	544	136
9. 6.66	...	74	51	7	—	—	—	18	18
0. 8.66	52	592	572	105	—	8	12	207	143
4. 9.66	46	622	425	134	1,056	125	—	240	158
3.10.66	102	195	83	40	4,642	1	—	104	54
1.10.66	...	—	—	—	2,033	—	—	—	—
6.11.66	100	683	554	226	5,358	71	2	349	146
5.11.66	...	29	17	46	59	12	—	52	26
3.12.66	6	111	240	67	1,901	3	18	85	37
0.12.66	...	395	38	76	33	—	—	43	25
0.12.66	33	227	590	158	12	13	59	46	38
	402	4,428	4,649	1,379	15,094	244	138	2,902	971
					or 755 tons	or 20 tons	or 14 tons		

721. Compared with 1965, the export of cattle fell by some 229 head, indicating the increasing number being retained on the mixed farms and the fact that the overstocking of the cattlewalk has been reduced. Pig exports remained constant while there was a small increase in the exports of sheep and goats. There was a marked increase, of over fifty per cent, in the export of fowls as well as in onions and garlic. The reduction in exports of acacia was due to increased home consumption. There was an increase in the export of salt fish and a reduction in dried octopus.

722. The approximate value of these exports was:

	Rs
402 cattle at Rs 250 per head	100,500
4,428 pigs at Rs 90 per head	398,520
4,649 sheep and goats at Rs 40 per head	185,960
1,379 crates of fowl at Rs 174 per crate	239,946
755 tons onions at Rs 500 per ton	377,500
20 tons garlic at Rs 1,000 per ton	20,000
14 tons acacia at Rs 460 per ton	6,440
2,902 bales salt fish of 140 lb at 90 cs per lb	365,652
971 bales octopus of 140 lb at Re 1 per lb	135,940
TOTAL	1,830,450

723. The annual exports are compared in the following table, values for all years being adjusted to the 1966 selling prices given above:

	1960	1961	1962	1963	1964	1965	1966
Cattle	615	720	1,076	579	616	631	402
Sheep and Goat	6,133	5,654	5,963	5,745	5,056	4,324	4,649
Poultry (crates)	728	650	636	706	550	861	1,379
Pigs	2,908	2,258	2,858	3,542	4,656	4,516	4,428
Onions & Garlic (tons)	258	150	51½	286	518	466	755
Acacia (tons)	235	75	38	130	81	79	14
Salt Fish (bales)	2,712	2,450	2,800	3,157	3,335	2,600	2,902
Octopus (bales)	1,475	1,090	1,570	948	950	1,247	971
VALUE	1,497,570	1,247,480	1,315,820	1,538,314	1,720,775	1,692,734	1,830,458

724. In 1966, the value of exports was a record in spite of an exceptionally dry year. Farmers are to be congratulated on their efforts, particularly in connection with the production of onions, which have risen from an export production of 51½ tons in 1962 to 735 tons in 1966. If weather conditions had not been unfavourable, the onion crop in 1966 would have exceeded 1,000 tons, thereby considerably increasing the total value of exports. The rise in exports does not fully indicate the increased production achieved by the farmers in Rodrigues, because of the fact that there has been an appreciable increase in local consumption of fish and meat.

725. Onion buying centres were built at La Ferme, Roche Bon Dieu and Citronelle. Each centre consists of a building 100' x 20' x 10' with a 10 ft wide verandah down one side with a reinforced concrete frame, concrete floor and galvanised roof, insulated with plastic foam. The division purchased the onion crop on behalf of the Agricultural Marketing Board using Rodriguan personnel. This has demonstrated that the Rodriguan is quite capable of handling this crop. As a result, it is proposed to organise a Rodriguan Producers Co-operative which should be capable of acting as the buying agent for the Agricultural Marketing Board.

726. A trial shipment of 30,000 limes was successfully handled by the Marketing Board. As a result, the Board declared limes a controlled crop in Rodrigues.

DEVELOPMENT

727. June brought to an end the Development Programme 1960-66 and the new programme was started in July. This new programme follows the pattern of the old save that provision has been made to speed up the rate of development.

728. Rodrigues is 26,000 acres in extent: 12,000 acres lie in the central upland area and 14,000 in the Cattle Walk or lowland farm area which surrounds the upland area. The following table has divided those two areas up into proposed types of land utilisation giving the position as at June 1966, and as it should be in June, 1972, and indicates the work that will remain to be done after 1972.

<i>Proposed Utilisation</i>	<i>Total Acreage</i>	<i>Average developed as at June 1966</i>	<i>Balance to be developed</i>	<i>To be deve- loped 1966-72</i>	<i>Total developed Acreage 1972</i>	<i>Balance to be developed after 1972</i>
AREA UPLANDS ...	12,000	—	—	—	—	—
Arable terraced ...	6,000	1,875	4,125	2,138	4,013	1,987
Intensive Grazing ...	1,450	52	1,398	600	652	798
Forests ...	3,050	1,850	1,200	1,200	3,050	—
Buildings, Roads etc.	1,500	1,100	400	400	1,500	—
AREA LOWLANDS ...	14,000	—	—	—	—	—
Arable terraced ...	4,000	1,897	2,103	1,698	3,595	405
Intensive Grazing ...	2,000	104	1,896	1,200	1,304	696
Extensive Grazing ...	3,000	—	—	—	—	—
Buildings, Roads etc.	5,000	—	—	—	—	—

729. The present land utilization of the island compared with the position June, 1972 and on the completion of development is given hereunder:

Type of Utilisation	Acres		Final
	At June 1966	At June 1972	
Eroded and abandoned or under unprotected shifting cultivation	7,724	2,688	Nil
Arable terraced	3,772	7,608	10,000
Intensive Grazing	156	1,956	3,450
Extensive Grazing	5,998	4,198	3,000
Outcrops, Buildings, Roads etc.	6,500	6,500	6,500
Forests	1,850	3,050	3,050
TOTAL	26,000	26,000	26,000

730. The technique of developing arable terraced farms, either in the uplands or on the lowlands, has been finalised and is now a routine operation carried out by the district overseers. Eroded land to be rehabilitated is surveyed and the catchment or stormwater and discharge drains are marked out and the land is contoured for the terraces. The contractors, who are usually the farmers who will lease the land once it has been rehabilitated, excavate the foundations for the terrace walls on the contour lines which are usually a trench 2'×2', all soil being thrown up the slope. The catchment and discharge drains are also dug, the sizes of which are seldom less than 2'×4' and, often larger, depending on the area to be served. This work costs about Rs 480 per acre. Stones are now collected and large boulders are broken, to provide stones for the terrace walls and the paving of the bottoms and sides, if necessary, of the drains at a cost of about Rs 660 per acre. The construction of the terrace walls and the paving of the drains etc. cost Rs 360 per acre. The total cost of rehabilitation of an acre of land is therefore Rs 1,500. The farms so developed are leased, the size of farms varying from two acres to four depending on situation, soils, cropping potential etc.

731. The intensive grazing areas are walled or fenced into one quarter acre paddocks at a cost of about 60 cents per foot. The paddocks are cleared by contractors using hand hoes and planted to Pangola grass and fertilized. Two weedings are necessary before the improved pasture is properly established. The walls or fences cost about Rs 600 per acre and the ploughing and establishment of the grass another Rs 600 making a total of Rs 1,200 per acre. These lands are then leased out to farmers in holdings of about 3 acres of grass with one acre of terraced arable land on which the farmer can grow his own food.

732. The object of this work is to settle families on farms which have been prepared to control soil erosion and support a number of livestock to ensure adequate production of manure, milk, butter, cash crops and small livestock for cash plus a subsistence food supply. Most of the island consists of rather steep rocky boulder strewn slopes and in the past, the majority of farmers did not live on the land they farmed; often their crop land was 2 or 3 miles away from their house. The last Development Programme has dramatically and popularly altered this system to one which is far more socially and economically sound.

FARM WATER SUPPLIES

733. An adequate farm water supply is an essential requisite for mi-
arable and dairy farms. The island is relatively rich in good small springs
found mainly between the 300 to 600 feet contour level in steep sided valleys.
The problem of farm water supply is therefore now being dealt with
collecting these springs to a pumping station, pumping the water collected
to a maximum of about 400 ft. and then distributing by gravity from storage
tanks on the tops of the hills to the farms. The alluvial valley bottom lands
which have had flood protection canals and diversion walls installed,
now being surveyed for stream flows, acreages and levels mapped with
view to ascertaining whether small portable overhead irrigation systems could
be installed.

734. The distribution pipe lines laid to date were as follows:

Year	$\frac{1}{2}$ " pipe ft	$\frac{3}{4}$ " pipe ft	1" pipe ft	1 $\frac{1}{2}$ " pipe ft	2" pipe ft	Total ft
1961 ...	1,633	—	8,906	—	6,384	16,923
1962 ...	5,100	3,303	22,985	5,721	6,321	43,430
1963 ...	6,274	6,641	11,385	4,589	14,929	43,818
1964 ...	7,334	7,210	10,712	5,000	10,185	40,441
1965 ...	12,100	180	19,583	29,153	58,747	119,763
1966 ...	14,700	—	24,400	23,500	34,880	97,480
TOTAL ...	47,141	17,334	97,971	67,963	131,446	361,854

735. The number of water taps installed on these pipe lines were:

Years	1961	1962	1963	1964	1965	1966	Total
No. of taps ...	105	101	156	185	302	381	1,230

736. Nine water pumps were in operation; two at Citronelle, Bas
Martin and Bigarade and one at Oyster Bay, Cascade Jean-Louis and
Citron Donis.

737. Thirty-nine dams and 23 water storage tanks were completed. The
new development programme will continue this work of spring exploitation
its completion. In later years, it will be necessary to construct large reservoirs
in suitable valleys to store additional water to support an extended irrigation
system. Whilst cutting coral blocks for building the new onion stores, we
may be an appreciable underground water supply in the underground
caverns of the Plaine Corail was discovered. The Plaine Corail appears
overly rich volcanic soils and strong spring lines were exposed when excavating
along the point where the coral and volcanic soil meet. This potential
supply will be investigated.

LIVESTOCK BREEDING CENTRES

738. Two more cattle and pig breeding centres will be established under
the new development programme to augment production of stock from
six centres already developed. At the end of the year, work started at
Batatran on the establishment of one centre on about 60 acres. The object of
the centres is to provide the newly settled farmers with grade Friesian dairy
cows and young bullocks for fattening and pure bred Berkshire pigs for
fattening and breeding stock. The new centres are to house and rear heifer
calves bought from Mauritius at a rate of 200 per year. The small farm
demand for milk cows now far exceeds the supply and it is hoped that

development will narrow this gap appreciably within the next six years. During the year, 24 second calvers in milk, 45 young bullocks and 337 piglets were sold to farmers and 37 calves were bought for rearing.

739. The number and distribution of the Government herd at the end of the year were as follows:

Station		Dairy Cattle				Total
		Adults		Young		
		Male	Female	Male	Female	
Oyster Bay	...	1	16	8	22	47
Malabar	...	1	59	—	10	70
Le Chou	...	2	41	6	11	60
St. Gabriel	...	2	55	8	5	70
Marechal	...	1	40	11	38	90
Baie Topaze	...	2	33	—	27	62
Demonstration plots	...	7	9	3	104	123
TOTAL		16	253	36	217	522

out of 127 calvings 68 male and 59 female calves were born.

740. The number and distribution of pigs on Government stations were as follows:

Station	Adults		Young		Total
	Male	Female	Male	Female	
Oyster Bay ...	5	6	8	11	30
Le Chou ...	2	17	16	18	53
St. Gabriel ...	2	14	21	11	48
Marechal ...	2	24	48	12	86
Baie Topaze ...	3	15	15	18	51
Demonstration plots ...	4	21	21	34	80
TOTAL	18	97	129	104	348

741. There were 78 farrowings producing 518 piglets or 6.6 piglets per sow with an 80 per cent survival to weaning.

742. During the year some pure bred Berkshire boars were imported from the United Kingdom to attempt to raise the litter number and to produce new blood.

743. The number and distribution of sheep on Government stations were as follows:

Station	Adults		Young		Total
	Male	Female	Male	Female	
Gombrani ...	3	25	10	11	49
Ile aux Crabes ...	9	21	5	14	49
TOTAL	12	46	15	25	98

744. There were 43 lambings producing 51 lambs, 13 rams and 5 ewes sold to farmers for breeding.

LAGOON ISLANDS

745. Altogether there were some 10,000 coconut palms, mainly Malay Dwarf, established on the islands of Sable, Coco, Crabe, Gombrani, Plat a Chat. The palms on Chat and Gombrani have flowered and have commenced to produce coconuts. Fruit set has improved with the establishment of be on islands where the palms have started to flower. Certain of the island provide a substantial amount of acacia seed for inclusion in livestock ration

746. The Government flocks of sheep are maintained on two islands where they appear to thrive.

CATTLE WALK

747. The cattle census was carried out as usual in March/April with the following results:

<i>Year</i>		<i>Bulls</i>	<i>Bullocks</i>	<i>Cows</i>	<i>Calves</i>	<i>Total</i>
1961	...	793	260	3,354	1,537	5,444
1962	...	696	281	2,890	955	4,822
1963	...	764	234	2,585	978	4,561
1964	...	No records				
1965	...	643	235	2,266	1,095	4,239
1966	...	457	206	2,147	1,123	3,933

748. These figures indicate a marked improvement in the management of the herd cattle.

MAINTENANCE OF AGRICULTURAL MACHINERY AND VEHICLES

749. With the co-operation of the Marine Services, a Central Workshop was set up in Port Mathurin with a section at the headquarters of the Division at Citronelle. The workshop is staffed and run by the Marine Services and maintains and services all agricultural machinery and vehicles belonging to the Agricultural Division. A considerable proportion of the equipment of the workshop was provided by the division.

FISHING

750. The demonstration of gill-net fishing carried out in 1965 have borne fruit and this method of fishing is gradually replacing large seine nets with beneficial results to the lagoon fisheries.

751. One fisheries post was built at Port Sud Ouest and a Fishery Guard has been on duty throughout the year.

752. One shallow draft lagoon patrol boat was transferred to Rodrigues from Mauritius.

AGRICULTURAL TRAINING FARM

753. The agricultural training farm, established at Marechal at the end of 1964 and financed largely by the United Kingdom Committee for the Fight from Hunger Campaign has continued to develop most satisfactorily under the able direction of the Revd. Father H. J. Smith.

754. At the close of the year, the following buildings were completed and equipped, one Presbtery, two dormitories, each housing 20 trainees with sleeping, ablution and recreation rooms, one kitchen and store, one chapel, one laundry as well as farm buildings. Tools and equipment, a Ferguson tractor, a 5 ton trailer and a Land Rover station waggon were received and a small meteorological station established.

755. A second group of 22 trainees were accepted in March, bringing the number of trainees in residence to 40. Training of the first group was sufficiently advanced by mid year that it became possible, with the new intake of trainees, for them to take over completely the full operation of the milking herd of 60 and 20 breeding sows as well as to carry out the normal day to day work of an arable farm. In addition, each student is required to tend a small garden, the produce from which he sells, after paying for materials used, the proceeds of which go into a savings account. By such work the trainee learns rudimentary farm accounting and economics.

756. The trainees constructed the second dormitory as well as a calf shed and repaired the farm buildings, piggeries etc. By so doing they learn the arts of metal work, masonry and woodwork to a degree required by an efficient small farmer.

757. Ile aux Crabes forms part of the training farm where a flock of sheep are kept, a coconut plantation has been established and from which island they learn to use gill-nets and other methods of fishing.

758. For recreation, the trainees have a football field and have established a small band, which is in demand for weddings, and similar functions. It is intended that physical training become part of the day to day activities of the trainees and, with the co-operation of the Commissioner of Police, it is proposed that a Physical Training Instructor visit the farm for a few weeks to give the staff and trainees initial training. The necessary equipment was being manufactured in Mauritius at the close of the year.

759. There is no doubt that the agricultural training farm has made a niche for itself in the farming community of Rodrigues. In the short time that it has been in existence, it has become firmly established. There is no doubt that the impact of this institution on the farming community will increase greatly, once the first few groups of trainees become established on their own farms and start to put into practice the practical training they have received.

XXIV. Lesser Dependencies

760. Three principal groups of islands were concerned, namely Peros of 2,900 arpents, Salomon of 2,000 arpents and Agalega of 6,000 arpents. The islands produce copra.

XXV. Land and Water Resources Survey

761. Excellent progress was made with the land and water resources survey being carried out by a team of Food and Agricultural Organisation experts on behalf of the United Nations Development Programme. The project is up to schedule. By the end of the year, all counterpart personnel required had been supplied by the various Ministries concerned.

762. Early in the year, the project completed a special study of the irrigated agricultural potential of a poorly developed area situated in the south-west corner of the island. The report on this investigation is known as the Chamarel Irrigation Report. It clearly sets out the work that is required

to be done with estimates of cost, if irrigation water is to be supplied to some 3,000 acres of arable land, presently largely undeveloped because of low rainfall and the absence of water for irrigation. The economics of the development were also investigated.

763. At the end of August, a report giving a preliminary appraisal of the potential land and water developments was presented to Government. As a result of this report, an application was made in September to the United Nations Development Programme for an extension of the project so as to include feasibility studies of two selected development schemes. In due course advice was received that only a limited extension of the project, within available funds, could be considered. Any major extension of the project, enabling selected schemes to be taken to the pre-investment point, would have to be put forward as a separate project.

764. A Consultant on Water Administration and Organisation completed his investigations early in the year and submitted a valuable report. The Consultant on soils visited the island for two months from mid. October to mid. December.

APPENDICES

A. Staff

(as at 31st December)

Director of Agriculture ... M. D. French-Mullen,
C.B.E., D.I.C.T.A.,
A.I.C.T.A.

Deputy Directors (2) ... S. Staub, A.R.C.S.T. Returned from
(Glas.), A.M.I. Mech. E., leave on 4.9.66
Dip. Agric. (Maur.)

A. Darné, F.R.C.V.S., Returned from
Dip. Agric. (Maur.) leave on 16.5.66

ADMINISTRATIVE AND FINANCE DIVISIONS

Chief Finance Officer ... G. Dhokit ... Acting

Chief Executive Officer ... S. W. Toolsy

In addition there are:

3 Senior Executive Officers	
6 Executive Officers	1 vacancy
2 Higher Clerical Officers	
15 Clerical Officers	1 vacancy
1 Senior Stores Officer	
3 Stores Assistants	
1 Confidential Assistant	
10 Typist/Stenographers	
1 Librarian	

AGRICULTURAL AND EXTENSION DIVISIONS

Senior Agricultural Officers (3)	B. D. Roy, B.Sc. Agric. (Wales), Dip. Agric. (Maur.)	Returned from leave on 24.1.66
	K. Lutchmeenaraidoo, B.Sc. Agric. (R'dg), Dip. Agric. (Maur.)	Returned from leave on 28.11.66
	1 vacancy	
Agronomists (4)	L. A. Suzor, Dip. Agric. (Maur.)	
	T. M. Narain, B.Sc. Agric. (R'dg)	
	L. R. Brunet, B.Sc. Agric. (R'dg)	
	1 vacancy	
Horticulturist	... Vacant	A. M. Osman acting
Agricultural Officers (9)	J. Marot	... Went on leave prior to retirement on 2.10.66
	I. Fakim, Dip. Agric. (Maur.)	Returned from leave on 8.8.66
	M. Sooltangos, Dip. Agric. (Maur.)	Returned from study leave on 11.4.66
	H. Choolun, Dip. Agric. (Maur.)	
	S. Bagwant	
	D. Reetoo	Went on leave on 8.8.66
	B. Nundloll	
	S. Y. E. Doomun	
	1 vacancy	

In addition there are:

17 Assistant Agricultural Officers	7 vacancies
22 Agricultural Cadets	... Vacant
16 Overseers	
8 Agricultural Assistants	5 vacancies

AGRICULTURAL CHEMISTRY DIVISION

Chemist	... S. Belcourt, B.Sc. (Wales), Dip. Agric. (Maur.)
Assistant Chemist (2)	... J. Pablot, B.Sc. (Lond.)
	1 vacancy

In addition there are:

3 Scientific Assistants	... 1 went on study leave on 28.8.66
	2 vacancies

PLANT PATHOLOGY DIVISION

Plant Pathologist	... L. Orioux, B.Sc. (Lond.), D.I.C.	Returned from leave on 8.5.66
Assistant Plant Pathologist	S. Félix, Dip. Agric. (Maur.)	Returned from study leave on 13.12.66

In addition there are:

4 Quarantine Inspectors	... 1 vacancy
2 Scientific Assistants	... 1 on study leave

CONTROL BOARD DIVISION

Registrar	... P. J. Galea, Dip. Agric. (Maur.)	
Assistant Registrar and Chief Chemist	A. A. Aumeerally, B.S. (Sug. E.), B.S. (Chem.E.) A.I. Chem. E., Dip. Agric. (Maur.)	Appointed on 29.8.66
Accountant	... P. G. Gnany, A.A., C.C.A.	
Senior Assistant Chemist	I.D. Nawoor, B.Sc. (Hons.) Chemistry (Wales)	
Assistant Chemist	... R. Thélemaque, Dip. Agric. (Maur.)	Went on leave on 12.12.66

In addition there are:

2 Investigational Officers and Weighbridge Inspectors	1 vacancy
3 Senior Test Chemists	... 1 returned from study leave on 22.8.66
	1 vacancy
25 Test Chemists	... 1 vacancy
1 Test Chemist	... employed during crop only
25 Samplers	... employed during crop only

AGRICULTURAL COLLEGE DIVISION

Principal	... E. Limfat M.Sc., M.S.A.E., A.M.I. AGR.E., B.Sc., A.C.G.I., A.M.I., Chem. E.	Went on leave on 30.12.66
Lecturers (4)	... R. Latulipe, B.Sc. (Lond.) R. Burrenchobay, B.Sc. (Edin.) S. Moutia, D. Phil (G.U.), B. Sc. (Hort.), Dip. Agric. (Maur.), Dip. Agric. Econ. (Oxon), F.R.H.S. R. D. Beeraj, B.Sc. (Wales)	Returned from leave on 3.1.66

Assistant Lecturers and Laboratory Demonstrators (4)	P. Guerandel, Dip. Agric. (Maur.) F. G. Carver, Dip. Agric. (Maur.) S. Boojedhur, Dip. Agric. (Maur.) A. M. Osman, B.Sc. Agric. (R'dg), Postgrad. D.T.A.	Went on study leave on 28.8.66 Went on study leave on 28.8.66
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In addition there are 24 part-time Lecturers

ENGINEERING DIVISION

Agricultural Engineer (2)	L. Li Pi Shan, B.Sc. (Sask) A. R. Satan, B.Sc. (Israel)	Appointed on 9.8.66
Assistant Agricultural Engineer	M. Morad Dip. Agric. (Maur.)	Returned from leave on 13.6.66

In addition there are:

1 Scientific Assistant	...	Vacant
1 Supervisor, Livestock Feed Factory		
1 Accounts Clerk		
1 Temporary Clerk, Extension Shop		

ENTOMOLOGICAL DIVISION

Entomologist	... J. E. A. Orian, Ph.D., D.I.C., B.Sc., F.R.E.S., F.Z.S., Dip. Agric. (Maur.) A.C.R.	
Assistant Entomologist	... J. Monty, Dip. Agric. (Maur.)	Went on study leave on 14.2.66

In addition there are:

2 Scientific Assistants	Vacant
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DIVISION OF VETERINARY SERVICES

Senior Veterinary Officer	J. U. D. Shuja, M.R.C.V.S.	Returned from leave on 17.10.66
Veterinary Officers (2)	D. A. Mac Pherson, B.Sc., M.R.C.V.S. C. S. S. Cheung Chin Yan B.V.M. & S. (Edin.), M.R.C.V.S.	On contract Appointed temporarily on 17.11.66
Animal Husbandry Officer	J. A. C. Delaitre, B. Agric. (N.Z.) Animal Husbandry	
Laboratory Technologist	Vacant	... F. Nadeau acting
Assistant Veterinary Officer	M. F. Mosaheb, B.Sc. (Vet.), B.Sc. (Ani. Hus.) Punjab	Appointed on 12.7.66
Senior Stock Inspectors(2)	H. J. Avice R. Pascal	
Agricultural Officers (2)	Clifford Gassin, N.D.P.H.	On study leave Y. Amjaud acting

Amand Ferrière

In addition there are:

2 Scientific Assistants	...	1 vacancy
9 Stock Inspectors	...	5 vacancies
21 Livestock Assistants		
3 Agricultural Assistants		
2 Overseers		

TEA DIVISION

Senior Agricultural Officer	D. N. Andrews	...	On contract
Agronomist (2)	...	L. Moorlee, Dip. Agric. (Maur.)	
		1 vacancy	
Agricultural Officer (4)	...	C. S. Amide, Dip. Agric. (Maur.)	
		E. Farla	
		2 vacancies	

In addition there are:

9 Assistant Agricultural Officers	7 vacancies
15 Overseers	6 vacancies
2 Agricultural Assistants	

FISHERIES DIVISION

Fisheries Officer	...	J. D. Ardill B.Sc. (Zoology) St. And.	Went on study leave on 27.8.66
Chief Inspector	...	J. Momplé	Is Officer-in-charge

In addition there are:

3 Inspectors	
3 Sub-Inspectors	
16 Head Guards	1 vacancy
36 Guards	3 vacancies

RODRIGUES DIVISION

Senior Agricultural Officer	P. L. Hotchin, O.B.E. B.Sc. Agric. (Leeds) D.T.A. (Trinidad)	Returned from leave on 31.10.66
Agricultural Officer	...	Vacant

In addition there are:

2 Assistant Agricultural Officers	
16 Overseers	
1 Executive Officer	
1 Clerical Officer	
1 Assistant Stores Officer	
2 Stores Assistants	
5 Clerical Assistants	
4 Fisheries Guards	.. Vacant

B. Composition of the Principal Boards and Committees**(i) BOARD OF AGRICULTURE, FISHERIES AND NATURAL RESOURCES***Ex-Officio Members*

The Director of Agriculture—*Chairman*.

The Conservator of Forests—*Vice Chairman*.

The Deputy Financial Secretary.

Members of the Legislative Assembly

Dr. The Honourable L. R. Chaperon.

The Honourable R. Rey.

The Honourable V. Govinden, M.B.E.

The Honourable H. R. K. Abdool.

Representatives of Millers

Mr. Serge Dupont de Rivalentz de St. Antoine.

Dr. P. O. Wiehe, C.B.E.

Representatives of Planters

Mr. Roland Ducler des Rauches.

Mr. Ramnarain Hurday.

Representative of the Chamber of Agriculture

Mr. L. H. Garthwaite.

There were 2 meetings of the Board during the year.

(ii) AGRICULTURAL COLLEGE ADVISORY BOARD

The Director of Agriculture—*Chairman*.

Nominated by His Excellency the Governor

The Honourable R. Balgobin, M.L.A.

Mrs. B. Jhowry.

Dr. P. O. Wiehe, C.B.E.

Nominated by the Chamber of Agriculture

Sir André Nairac, Kt., C.B.E., Q.C.

Mr. Serge Dupont de Rivalentz de St. Antoine.

Nominated by the Société de Technologie Agricole et Sucrière

Mr. Robert Antoine.

Mr. Auguste Harel.

Nominated by the Association of Former Agricultural Students

Dr. Alfred J. E. Orian.

The Board held 4 meetings during the year.

(iii) ARBITRATION AND CONTROL BOARD

Mr. Magistrate S. Mootoosamy—*Chairman*.

Representatives of Millers

Mr. Ernest Bouvet.

Mr. Philippe d'Arifat

Representatives of Large Planters

Mr. Roland Ducler des Rauches.

Mr. Baalkrishna Ramphul.

Representatives of Small Planters

Mr. Nunkeesor Saddul.

Mr. Jagdeosing Chundunsing.

The Board held 25 meetings during the year.

(iv) TOBACCO BOARD

Ex-Officio Members

The Director of Agriculture or any officer of his Department deputed by him—*Chairman*.

The Commissioner of Excise—*Vice Chairman*.

The Accountant General or any officer of his Department deputed by him.

The Manager, Tobacco Warehouse.

Appointed by His Excellency the Governor on the advice of the Minister

The General Manager of the British American Tobacco Co. (Mauritius) Ltd., or his representative.

The Managing Director of the Amalgamated Tobacco Corporation (Mauritius Ltd.), or his representative.

Mr. A. G. Rey.

Mr. P. Jheelan.

Mr. R. Ducler des Rauches.

Mr. A. Purgass.

Mr. S. Butan.

Mr. G. R. Sohawon.

The Board held 13 meetings during the year.

(v) LAND SETTLEMENT ADVISORY COMMITTEE

The Director of Agriculture or his representative—*Chairman*.

The Senior Agricultural Officer (Extension).

The Registrar of Co-operative Societies.

The Chairman, District Council (North).

The Chairman, District Council (South).

The Chairman, District Council (Moka—Flacq).

The Honourable Vele Govinden, M.B.E., M.L.A.

Mr. R. Hurday.

Mr. Hurruck Hoolsy.

The Committee did not hold any meeting during the year.

(vi) TEA CONTROL BOARD

Ex-Officio Members

The Director of Agriculture—*Chairman*.

The Deputy Financial Secretary.

Members appointed by His Excellency the Governor

Mr. P. Boullé.

Mr. J. Pilot.

Mr. L. Ramdin.

Mr. A. L. Maderbocus.

Mr. B. Ramsahye.

The Honourable V. Govinden, M.B.E., M.L.A.

The Honourable H. R. K. Abdool, M.L.A.

Mr. Francis North Coombes.

The Board held 12 meetings during the year.

(vii) SUGAR PLANTERS' REHABILITATION FUND COMMITTEE

*Ex-Officio Members*The Director of Agriculture—*Chairman*.

The Registrar of Co-operative Societies.

Members appointed by His Excellency the Governor

Mr. C. Dwarkasingh.

Mr. J. Lagesse.

Mr. S. Butan.

Mr. J. Roodurmun.

Mr. G. Rouillard.

The Committee held 14 meetings during the year.

C. Legislation

- Government Notice No. 28 of 1966 ... The Mauritius Agricultural Marketing Ordinance—The Mauritius Agricultural Marketing (Prices) (Amendment) Order, 1966.
- Government Notice No. 40 of 1966 ... The Mauritius Agricultural Marketing Ordinance—Controlled Products (Amendment) Order 1961.
- Government Notice No. 55 of 1966 ... Civil Establishment (General) (Amendment) No. 63 Order 1966.
- Government Notice No. 67 of 1966 ... Civil Establishment (General) (Amendment) No. 64 Order 1966.
- Government Notice No. 95 of 1966 ... The Convention of fishing and conservation of the living resources of high seas.
- Government Notice No. 102 of 1966 ... The Mauritius Agricultural Marketing Ordinance, 1963—Controlled Products (Amendment No. 2) Order 1966.
- Government Notice No. 107 of 1966 ... The Mauritius Agricultural Marketing (Controlled Products) (Milk) Revocation Order 1966.

- Government Notice No. 108 of 1966 ... The Mauritius Agricultural Marketing (Milk Prices) (Revocation) Order 1966.
- Government Notice No. 110 of 1966 ... The Mauritius Agricultural Marketing (Prices) (Amendment No. 2) Order 1966.
- Government Notice No. 116 of 1966 ... Copyright (Libraries) Regulations 1966.
- Government Notice No. 118 of 1966 ... The Civil Establishment (General) (Amendment No. 65) Order 1966.
- Government Notice No. 126 of 1966 ... The Mauritius Agricultural Marketing Ordinance, 1963—Controlled Products (Amendment No. 3) Order 1966.
- Ordinance No. 9 of 1966 ... The shooting and fishing leases Ordinance, 1966—To consolidate and amend the law relating to shooting and fishing leases.
- Ordinance No. 26 of 1966 ... The Mauritius Society for the prevention of cruelty to animals (Inspectors' powers and protection), Ordinance 1966—To give certain powers to and to protect the Inspectors of the Mauritius Society for the prevention of cruelty to animals in the performance of their duties.
- Ordinance No. 28 of 1966 ... The Sugar Industry Reserve funds (Amendment No. 2) Ordinance, 1966—To amend the Sugar Industry Reserve Funds Ordinance, 1959.
- Ordinance No. 33 of 1966 ... The Appropriation (Public Service) (1966-67) Ordinance 1966—To make provision for the public service financial year 1966-67.
- Ordinance No. 38 of 1966 ... The Tobacco Production and Marketing (Amendment) Ordinance, 1966. To amend the Tobacco Production and Marketing Ordinance.
- Ordinance No. 39 of 1966 ... The Mauritius Agricultural Marketing (Amendment) Ordinance, 1966—To amend the Mauritius Agricultural Marketing Ordinance, 1963.

Ordinance No. 45 of 1966	... The Tobacco (Consolidation) (Amendment) Ordinance, 1966—To validate a resolution of the Legislative Assembly amending the rate of excise duty of leaf tobacco produced in the Colony and to amend the Tobacco (Consolidation) Ordinance accordingly.
Ordinance No. 49 of 1966	... The University of Mauritius (Provisional Council) (Amendment) Ordinance, 1966.
Ordinance No. 55 of 1966	... The Fisheries (Amendment) Ordinance 1966—To amend the Fisheries Ordinance.
Ordinance No. 59 of 1966	... The National Federation of Young Farmers' Clubs Incorporation Ordinance, 1966.—To provide for the incorporation and management of the National Federation of Young Farmers' Club.
Proclamation No. 2 of 1966	... To proclaim the rate of duty leviable under the sale of canes (Control) Ordinance, 1964, on the sugar of the 1965 crop exported from Mauritius.
Proclamation No. 20 of 1966	... To amend proclamation No. 5 of 1966 <i>re.</i> varieties of cane which may be planted and propagated in the colony and to fix the time within which other varieties of sugar-cane growing in the colony shall be uprooted.

D. List of Publications and Contributions to Literature by Officers of the Department of Agriculture during 1966

<i>Name of Author</i>	<i>Title of paper</i>	<i>Name, Volume No., Page Nos. of periodical in which published</i>
Andrews, D. N.	... The cold storage of tea seed	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 45, No. 4 pp 303-304
Julien, J. H.	... La culture des agrumes à Maurice	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 45, No. 3 pp. 241-243
Lim Fat, E.	... Notes on a tour of some educational and research institutions overseas	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 45, No. 1 pp. 16-22
Moutia, S.	... Tea propagation in Assam ...	Revue Agricole et Sucrière de l'Ile Maurice, Vol' 45, No. 1 pp. 12-15
Roy, B. D.	... Notes on the cultivation of sunflower in Mauritius	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 45, No. 4 pp. 280-286
Seevave, J.	... Preliminary investigations into the flowering of pineapple	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 45, No. 4 pp. 299-302

F. Animal Health Laboratory**PATHOLOGICAL CONDITIONS DIAGNOSED IN POULTRY****SUBMITTED BY BREEDERS—1966**

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Total</i>
Respiratory Disease ...	2	4	15	2	27	28	6	10	42	10	24	19	189
Worms Infestation ...	4	8	4	3	13	2	3	2	7	8	6	6	66
Vitamin A deficiency	—	1	2	—	3	1	4	1	—	1	1	—	14
Vitamin B deficiency	—	—	—	—	—	—	—	—	—	—	5	—	5
Rickets ...	—	—	—	—	1	2	1	2	—	1	—	2	9
Nephritis ...	—	1	1	—	1	1	—	2	—	2	1	—	9
Coccidiosis ...	14	10	4	5	9	5	7	9	13	27	20	14	137
Aspergillosis ...	—	—	1	—	—	—	—	1	—	1	2	—	5
Encephalomyelitis ...	—	—	—	—	—	—	—	—	—	—	—	—	—
Leucosis ...	6	3	3	3	3	6	1	4	2	4	7	7	49
Cannibalism ...	1	—	1	—	—	—	—	—	1	—	—	1	4
C. R. D. ...	1	2	1	—	1	2	3	2	1	1	1	1	16
Unabsorbed yolk ...	7	—	17	—	19	—	2	8	40	9	13	11	126
Peritonitis ...	2	1	1	3	4	4	2	—	2	7	2	3	31
Trauma ...	—	—	—	—	—	—	—	—	1	—	—	—	1
Trichomonas ...	—	—	—	—	—	—	1	—	—	—	—	—	1
Enteritis ...	—	—	—	—	—	—	—	1	—	—	2	1	4
Fowl Pox ...	1	1	—	—	—	—	1	—	—	1	1	2	7
Anaemia ...	—	—	1	—	—	2	—	—	—	—	—	—	3
Newcastle disease ...	1	2	7	—	1	1	3	1	—	4	2	4	26
Black Head ...	—	—	—	—	1	1	1	2	—	—	1	—	6
Miscellaneous ...	—	—	1	—	3	—	1	2	6	6	1	—	20
TOTAL ...	39	33	59	16	86	55	36	47	115	82	89	71	728

PATHOLOGICAL CONDITIONS DIAGNOSED IN SPECIMENS**SUBMITTED BY POULTRY BREEDING CENTRE RÉDUIT—1966**

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Total</i>
Respiratory Disease	23	17	10	16	30	100	81	102	105	69	49	26	628
Worms Infestation	12	8	7	2	6	—	—	3	1	2	—	1	42
Vitamin A deficiency	2	—	1	—	2	1	—	—	—	—	—	—	6
Vitamin B deficiency	—	—	—	—	—	18	25	16	13	12	35	12	131
Rickets ...	18	3	—	—	1	1	3	1	14	3	16	10	70
Nephritis ...	9	10	6	4	1	3	7	8	4	3	4	5	64
Coccidiosis ...	6	—	3	7	5	—	—	5	7	2	7	6	48
Aspergillosis ...	—	—	1	—	—	—	—	—	—	1	—	—	2
Encephalomyelitis ...	3	1	—	—	31	7	—	—	—	—	—	—	42
Leucosis ...	34	40	38	22	26	25	12	16	27	27	20	28	315
Cannibalism ...	5	3	2	4	—	—	—	2	9	4	4	3	36
C.R.D. ...	2	2	3	3	—	2	2	8	1	4	1	1	29
Unabsorbed yolk ...	—	2	18	30	43	56	58	62	73	68	46	42	498
Peritonitis ...	15	19	26	27	9	14	11	14	15	19	11	18	198
Trauma ...	33	12	1	3	1	—	4	—	10	16	13	9	102
Trichomonas ...	3	1	—	1	4	—	—	—	—	—	—	—	9
Enteritis ...	—	—	—	1	1	1	—	3	10	2	1	1	20
Anaemia ...	1	—	—	—	—	—	1	—	—	—	—	—	2
Newcastle disease ...	—	6	1	1	3	7	—	—	—	—	—	—	18
Black Head ...	—	—	—	—	—	—	—	—	1	—	—	—	1
Fowl Pox ...	—	1	1	—	—	—	—	—	—	—	—	—	2
Miscellaneous ...	27	6	12	20	26	20	7	12	18	43	14	12	217
TOTAL ...	193	131	130	141	189	255	211	252	308	275	221	174	2480

DETAILS OF SPECIMENS SUBMITTED BY GOVERNMENT CENTRES
OTHER THAN POULTRY BREEDING CENTRE

Palmar Livestock Breeding Station

		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Milk Sample ...	...	—	—	—	1	—	—	3	—	—	8	—	—	12
Calf ...	...	1	—	—	1	—	1	—	—	—	1	—	1	5
Sheep ...	...	1	—	—	—	1	—	—	—	—	—	—	—	2
Kid ...	...	—	1	—	—	—	1	—	1	3	1	—	—	7
Rabbit ...	...	—	—	—	1	—	—	—	—	—	—	—	—	1
Blood Sample ...	...	—	—	—	1	1	—	—	56	—	4	—	—	62
Goat's Skin ...	...	—	—	—	—	—	—	—	—	—	—	—	—	—
Scraping ...	...	—	—	—	1	—	—	3	—	—	—	—	—	4
Duck's Stool ...	...	—	—	—	1	—	—	—	—	—	—	—	—	1
Cow foetus ...	...	—	—	—	1	—	—	—	—	1	—	—	—	2
Swabs ...	...	—	—	—	2	—	—	—	—	—	—	—	—	2
TOTAL ...	...	2	1	—	9	2	2	6	57	4	14	—	1	98

CUREPIPE LIVESTOCK BREEDING STATION

Milk Sample ...	...	—	52	16	3	—	—	—	—	—	4	—	—	75
Calf ...	...	1	—	—	—	—	—	—	—	—	—	—	—	1
Sow ...	...	—	—	—	—	1	—	—	—	—	—	—	—	1
Bull ...	...	—	—	—	—	2	1	—	—	—	—	—	—	3
Pig's Stool ...	...	—	—	—	—	12	—	—	—	—	—	—	—	12
Pig ...	...	—	—	—	—	—	1	—	—	—	—	—	1	2
Blood Sample ...	...	—	—	—	—	—	—	31	—	—	15	—	—	46
TOTAL ...	...	1	52	16	3	15	2	31	—	—	19	—	1	140

ARTIFICIAL INSEMINATION CENTRE

Division of Veterinary Services Réduit

Milk Sample ...	...	—	—	—	—	—	—	—	—	—	1	1	—	2
Rabbit ...	...	14	—	—	—	1	—	8	—	3	5	—	—	31
Bird ...	...	—	—	3	—	—	1	—	—	—	—	—	—	4
Goat's Milk ...	...	—	—	—	1	—	—	—	—	—	—	—	—	1
Kid ...	...	—	—	—	—	—	1	—	—	—	—	—	—	1
Rabbit's Stool ...	...	—	—	—	—	—	1	1	—	—	—	—	—	2
Pheasant ...	...	—	—	—	—	—	1	—	—	—	—	—	—	1
Blood Sample ...	...	—	—	—	—	—	—	1	—	—	—	—	—	1
Partridge ...	...	—	—	—	—	—	—	—	1	—	—	1	—	2
Ducks ...	...	—	—	—	—	—	—	—	—	—	1	—	—	1
Guinea Pig ...	...	—	—	—	—	—	—	—	—	—	1	—	—	1
TOTAL ...	...	14	—	3	1	1	4	10	1	3	7	2	1	47

DETAILS OF SAMPLES SUBMITTED BY GOVERNMENT CENTRES
OTHER THAN POULTRY BREEDING CENTRE

Barkly Industrial School

		Jan	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Rabbit ...	...	—	—	—	2	—	—	—	—	—	—	—	—	2
Fowl ...	...	—	—	—	—	—	—	—	1	—	—	—	—	1
TOTAL ...	...	—	—	—	2	—	—	—	1	—	—	—	—	3

Richelieu Experiment Station

			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Fowl ...	...	...	—	1	1	1	—	2	—	1	—	—	—	—	6
Bull's Stool ...	...	...	—	—	1	—	—	—	—	—	—	—	—	—	1
Calf ...	...	...	—	—	—	—	—	—	1	—	—	—	—	—	1
Sow ...	...	...	—	—	—	—	1	—	—	—	—	—	—	—	1
Blood Sample	...	...	—	—	—	—	—	—	—	1	—	—	—	—	1
TOTAL	...	...	—	1	2	1	1	2	1	2	—	—	—	—	10

Roche Bois Quarantine Station

Swab ...	...	...	—	—	1	—	—	—	—	—	—	—	—	—	1
Cattle ...	...	...	—	—	—	1	—	—	—	1	—	—	—	—	2
Goat ...	...	...	—	—	—	2	—	—	—	—	3	—	—	—	5
Sheep ...	...	...	—	—	—	1	—	—	1	1	—	1	—	1	5
Blood Sample	...	...	—	—	—	—	—	—	4	18	—	—	—	—	22
Bull's Stool ...	...	...	—	—	—	—	—	—	1	—	—	—	—	—	1
TOTAL	...	...	—	—	1	4	—	—	6	20	3	1	—	1	36

Mapou Demonstration Centre

Fowl ...	...	...	1	—	1	—	2	1	—	—	1	—	2	—	8
Rabbit	...	...	1	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL	...	...	2	—	1	—	2	1	—	—	1	—	2	—	9

Flacq Demonstration Centre

Fowl ...	...	...	—	1	1	—	—	—	1	—	—	6	—	1	10
Goat ...	...	...	—	—	1	—	—	—	—	—	—	—	—	—	1
TOTAL	...	...	—	1	2	—	—	—	1	—	—	6	—	1	11

Plaisance Demonstration Centre

Fowl ...	...	...	—	1	2	—	—	—	—	—	—	—	1	—	4
Goat's Skin Scraping	...	...	—	—	—	—	—	—	—	—	—	—	—	1	1
TOTAL	...	...	—	1	2	—	—	—	—	—	—	—	1	1	5

Arsenal Demonstration Centre

Fowl ...	...	...	1	—	—	—	—	—	—	—	—	1	—	1	3
TOTAL	...	...	1	—	—	—	—	—	—	—	—	1	—	1	3

POLICE CASES—1966

Dog ...	...	...	1	—	—	—	1	—	—	—	—	—	—	—	2
Fowl ...	...	...	—	—	2	8	1	—	3	—	—	—	2	—	16
Goat ...	...	...	—	—	—	1	—	—	—	—	—	—	—	—	1
Fish ...	...	...	—	—	—	6	—	—	—	—	—	—	—	—	6
Stag ...	...	...	—	—	—	—	—	—	—	—	1	—	—	—	1
Rabbit	...	...	—	—	—	—	—	—	—	—	—	—	—	2	2
TOTAL	...	...	1	—	2	15	2	—	3	—	1	—	2	2	28

DETAILS OF SPECIMENS SUBMITTED FOR PATHOLOGICAL EXAMINATION

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Dog	3	1	—	—	—	—	—	1	1	1	—	—	7
Bull	3	—	—	—	—	—	—	—	—	—	1	—	4
Buck	—	—	—	1	—	—	—	—	—	—	—	—	1
Sheep	—	—	—	—	1	—	1	—	—	1	—	1	4
Goat	1	—	1	2	—	1	—	—	2	2	4	2	15
Rabbit	6	3	—	2	—	—	1	—	—	2	5	1	20
Calf	—	—	—	—	—	—	2	—	—	—	—	—	2
Cow	—	—	—	—	—	—	—	—	—	—	1	1	2
Milk Samples	—	—	—	—	—	—	10	—	7	3	1	1	22
Pus	—	—	—	—	—	—	1	—	—	—	—	—	1
Skin Scraping	—	—	—	—	—	—	3	2	4	—	1	1	11
Blood Sample	—	—	—	—	—	—	1	—	—	20	—	—	21
Specimens sterilised	—	—	—	—	—	—	3	12	9	9	3	8	44
TOTAL	13	4	1	5	1	1	22	15	23	38	16	15	154

NUMBER OF STOOL SAMPLES RECEIVED AND EXAMINED

Dog	2	2	3	2	1	—	2	5	3	1	2	2	25
Bull	1	—	1	—	—	—	—	—	1	—	—	1	4
Buck	—	—	—	1	—	—	—	—	3	—	—	—	4
Sheep	—	—	—	—	2	—	—	—	—	—	—	—	2
Hcn	1	—	—	—	—	—	—	—	—	—	1	1	3
Goat	1	—	—	—	—	1	—	—	—	—	—	3	5
Rabbit	1	—	1	—	—	—	—	—	—	—	—	1	3
Horse	—	—	1	—	—	2	—	—	—	2	—	—	5
TOTAL	6	2	6	3	3	3	2	5	7	3	3	8	51

MILK SAMPLES EXAMINED—1966

2	52	26	10	18	13	18	5	14	22	2	2	184
---	----	----	----	----	----	----	---	----	----	---	---	-----

NUMBER OF BLOOD SAMPLES RECEIVED FOR C.R.D. TEST—1966

From Poultry Breeding Centre and Public	—	—	—	—	13	4	—	300	150	70	—	—	537
Number Positive	—	—	—	—	—	—	—	8	9	5	—	—	22

NUMBER OF BLOOD FILMS RECEIVED—1966

Month	Locality	No. of Blood films	Positive			Negative
			<i>T. Mutans</i>	<i>Anaplas- mosis</i>	<i>Babesia Bovis</i>	
January ...	Le Morne ...	10	—	—	—	10
do ...	Trou d'eau Douce ...	8	—	—	—	8
do ...	Curepipe ...	4	—	—	—	4
do ...	Bénarès S.E. ...	10	—	—	—	10
February ...	— ...	—	—	—	—	—
March ...	— ...	—	—	—	—	—
April ...	— ...	—	—	—	—	—
May ...	— ...	—	—	—	—	—
June ...	— ...	—	—	—	—	—
July ...	Roches Bois ...	14	—	—	—	14
do ...	Curepipe L.B.S. ...	31	—	—	—	31
August ...	Palmar L.B.S. ...	40	5	1	—	34
do ...	Rodrigues ...	5	—	—	—	5
do ...	Richelieu E.S. ...	4	—	—	—	4
do ...	Mont Choisy S.E. ...	20	1	—	2	17
do ...	La Chaumière E.S. ...	10	—	—	—	10
do ...	Different part of Moka	14	—	—	—	14
September ...	Morne Estate ...	82	28	10	—	44
do ...	Different Locality ...	31	—	3	—	28
do ...	Palmar L.B.S. ...	25	2	3	—	20
October ...	Different Locality ...	7	—	2	—	5
do ...	Arsenal ...	4	—	—	—	4
do ...	Morne Estate ...	10	—	—	—	10
do ...	Savannah S.E. ...	19	2	9	—	8
November ...	Belle-Mare ...	22	—	1	—	21
December ...	R. du Rempart ...	5	—	—	—	5
TOTAL ...		375	38	29	2	306

G. Conversion Table

1 Arpent	...	...	1.043 acres
1 Gaulette	...	...	10.61 feet
1 Metric Ton	...	...	1,000 kilos
1 Long Ton	...	...	1,016 kilos
1 Pound avoirdupois	...	...	454 grams
1 Kilo	...	...	1,000 grams
1 Hundredweight	...	...	50.808 kilos
1 Cord	...	...	92.82 cubic feet
1 Imperial Gallon	...	...	4.54 litres
1 Rupee	...	...	1/6 Sterling

